



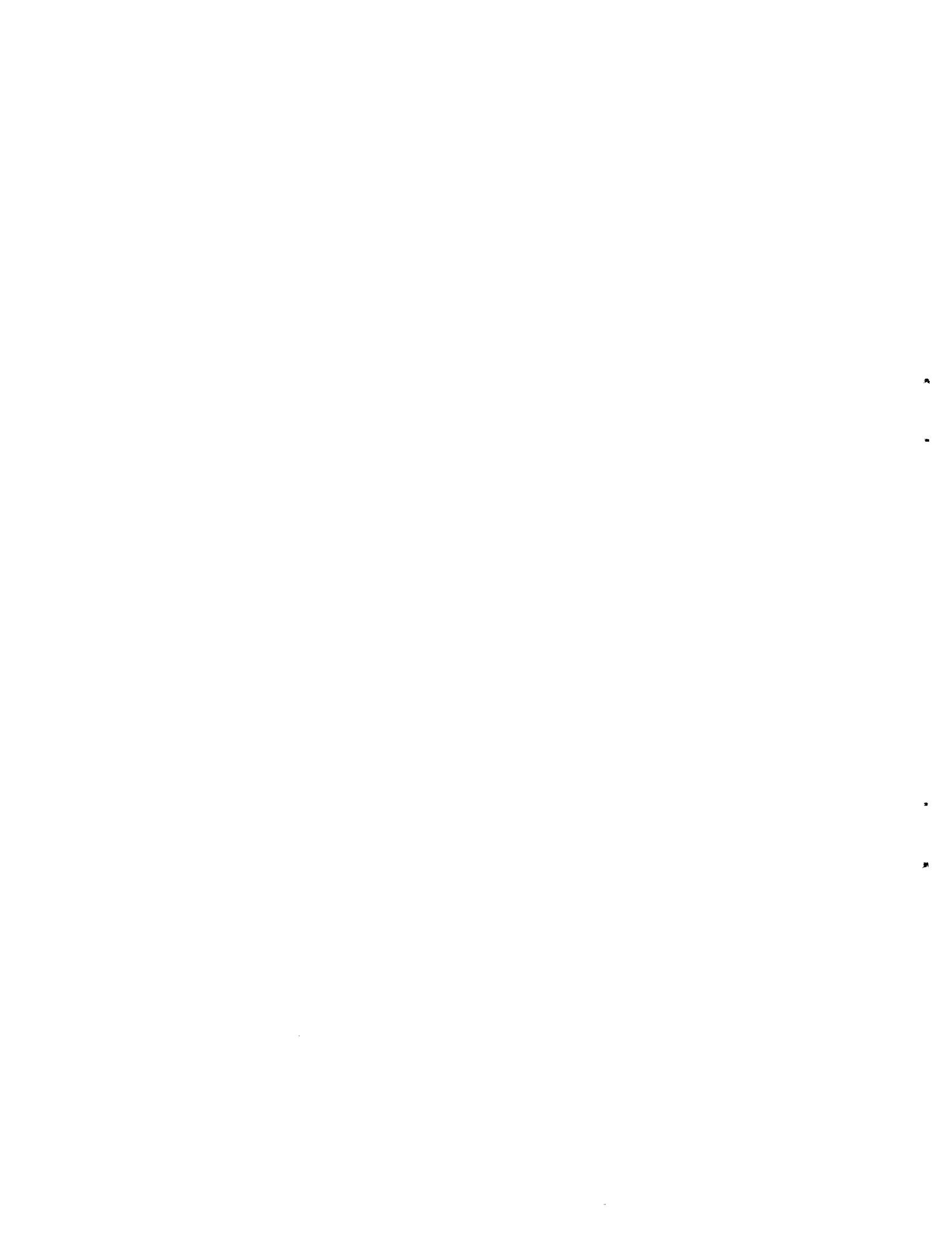
U.S. Department
of Transportation

**Federal Aviation
Administration**

Office of Aviation Policy
and Plans

Washington, D.C. 20591

Allocation of Future Federal Airport and Airway Costs



Technical Report Documentation Page

1. Report No. FAA-APO-87-12	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Allocation of Future Federal Airport and Airway Costs		5. Report Date December 1986	
		6. Performing Organization Code FAA (APO-220)	
		8. Performing Organization Report No.	
7. Author(s) Daniel E. Taylor, Frank J. Berardino, Richard S. Golaszewski, and Ira R. Greenstein			
9. Performing Organization Name and Address Office of Aviation Policy and Plans Federal Aviation Administration Department of Transportation Washington, D.C. 20591		10. Work Unit No. (TRAIS)	
12. Sponsoring Agency Name and Address		11. Contract or Grant No.	
		13. Type of Report and Period Covered Final Report	
		14. Sponsoring Agency Code	
15. Supplementary Notes			
16. Abstract This document was prepared under the supervision of the Office of Aviation Policy and Plans of the Federal Aviation Administration (FAA). It provides technical documentation for the FAA's report, "Airport and Airway Costs: Allocation and Recovery in the 1980s," (FAA-APO-87-7). This volume focuses on the methods used to make future allocations of projected FAA costs. It presents projected cost allocation estimates for the period 1988 through 1997. The results reflect the full implementation of the National Air Space Plan (FAA's capital expenditure plan) and the staffing and productivity changes that will result from its implementation.			
17. Key Words Public Finance, Airport and Airway System, Cost Allocation, Cost Recovery, Aviation User Taxes		18. Distribution Statement Document is available to the public through the National Technical Information Service, Springfield, Virginia	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 113	22. Price



TABLE OF CONTENTS

	<u>Page</u>
SECTION 1.0 INTRODUCTION	1
1.1 Purpose	1
1.2 Overview and Summary of Results . . .	1
1.3 Reference to Other Volumes.	8
1.4 Organization of the Remainder of This Volume	11
SECTION 2.0 METHODOLOGY.	12
2.1 Projection and Allocation of Major Budget Categories	12
2.2 1992 Cost Functions	12
2.3 Amortization of F&E	17
SECTION 3.0 REVIEW OF RESULTS.	22
3.1 Comparison of 1985 and 1997 Allocations	22
3.2 Detailed User Allocations for 1985, 1992 and 1997	26
3.3 Minimum GA Allocations.	37
SECTION 4.0 DETAILED RESULTS	39
NOTES	88
APPENDIX A AMORTIZATION OF F&E	



LIST OF TABLES AND FIGURES

	<u>Title</u>	<u>Page</u>
Table 1.1	Inflation Rate Assumptions.	3
Table 1.2	Indices of Future Activity.	4
Figure 1.1	FAA Budget Projections.	7
Figure 1.2	Allocation of FAA Costs - Users	9
Figure 1.3	Allocation of FAA Costs - Public.	10
Table 2.1	Projection and Allocation of Major Budget Categories.	14
Table 2.2	Comparison of 1984 and 1992 Operating Site Costs.	18
Table 2.3	Key Components of Amortization Analysis . . .	20
Table 3.1	Allocation of Major FAA Cost Centers. 1985 and 1997	24
Figure 3.1	Allocation of FAA Costs - Users	28
Figure 3.2	Allocation of FAA Costs - Public.	29
Figure 3.3	Allocation of FAA Costs - Users	32
Figure 3.4	Allocation of FAA Costs - Public.	33
Figure 3.5	Allocation of FAA Costs - Users	35
Figure 3.6	Allocation of FAA Costs - Public.	36
Figure 3.7	Minimum GA Allocation	38
Table 4.1	1986 Allocation Regulatory Costs Allocated to Users.	41
Table 4.2	1986 Allocation Regulatory Costs Allocated to Public	42
Table 4.3	1986 Minimum GA Allocation.	43
Table 4.4	1987 Allocation Regulatory Costs Allocated to Users.	45

LIST OF TABLES AND FIGURES (Continued)

	<u>Title</u>	<u>Page</u>
Table 4.5	1987 Allocation Regulatory Costs Allocated to Public.	46
Table 4.6	1987 Minimum GA Allocation	47
Table 4.7	1988 Allocation Regulatory Costs Allocated to Users	49
Table 4.8	1988 Allocation Regulatory Costs Allocated to Public.	50
Table 4.9	1988 Minimum GA Allocation	51
Table 4.10	1989 Allocation Regulatory Costs Allocated to Users	53
Table 4.11	1989 Allocation Regulatory Costs Allocated to Public.	54
Table 4.12	1989 Minimum GA Allocation	55
Table 4.13	1990 Allocation Regulatory Costs Allocated to Users	57
Table 4.14	1990 Allocation Regulatory Costs Allocated to Public.	58
Table 4.15	1990 Minimum GA Allocation	59
Table 4.16	1991 Allocation Regulatory Costs Allocated to Users	61
Table 4.17	1991 Allocation Regulatory Costs Allocated to Public.	62
Table 4.18	1991 Minimum GA Allocation	63
Table 4.19	1992 Allocation Regulatory Costs Allocated to Users	65
Table 4.20	1992 Allocation Regulatory Costs Allocated to Public.	66
Table 4.21	1992 Minimum GA Allocation	67

LIST OF TABLES AND FIGURES (Continued)

	<u>Title</u>	<u>Page</u>
Table 4.22	1993 Allocation Regulatory Costs Allocated to Users.	69
Table 4.23	1993 Allocation Regulatory Costs Allocated to Public	70
Table 4.24	1993 Minimum GA Allocation.	71
Table 4.25	1994 Allocation Regulatory Costs Allocated to Users.	73
Table 4.26	1994 Allocation Regulatory Costs Allocated to Public	74
Table 4.27	1994 Minimum GA Allocation.	75
Table 4.28	1995 Allocation Regulatory Costs Allocated to Users.	77
Table 4.29	1995 Allocation Regulatory Costs Allocated to Public	78
Table 4.30	1995 Minimum GA Allocation.	79
Table 4.31	1996 Allocation Regulatory Costs Allocated to Users.	81
Table 4.32	1996 Allocation Regulatory Costs Allocated to Public	82
Table 4.33	1996 Minimum GA Allocation.	83
Table 4.34	1997 Allocation Regulatory Costs Allocated to Users.	85
Table 4.35	1997 Allocation Regulatory Costs Allocated to Public	86
Table 4.36	1997 Minimum GA Allocation.	87
Table A.1	User Taxes to Fund the Project.	7
Table A.2	Alternative F&E Amortization Methods: An Example.	8
Table A.3	Alternative F&E Amortization Methods: The Two Period Case	11



SECTION 1.0
INTRODUCTION

1.1 Purpose

The purpose of the cost allocation study is to allocate current and future costs among users of the FAA's airport and airway systems. These cost allocations provide information useful in analyzing user taxes to cover the period 1988-1997.

The results presented in this volume are based upon FAA plans for NASP implementation as of the Fall of 1985. These plans included projected changes in staffing and productivity which are reflected in future operating costs, and user allocations.

The present volume reports the results of the allocation of future FAA costs among users. Volume 1 presents an extensive discussion of the methodologies employed in this study, together with detailed presentation of the results for the year 1985.

1.2 Overview and Summary of Results

The allocations of future FAA costs are based upon the same methodologies presented in Volume 1. FAA airport and airway costs are allocated to users by applying the concept of avoidable costs. These are the costs that would be avoided by the FAA if a user group discontinued its use of all or part of the FAA airport and airway systems. Any costs which are jointly attributable to

users are allocated among them based upon Ramsey Pricing which minimizes the distortion in aviation markets resulting from the allocation of joint costs.

This study presents two types of allocations: a full cost allocation of the entire FAA budget, and an estimated minimum general aviation allocation. The main distinction between the two types of allocations is that in the latter case, general aviation users are not assigned a share of joint costs. Otherwise, the methodologies employed are nearly identical.

In developing these allocations for the future, there are four major issues that had to be addressed: inflation, changes in activity, the effect of the National Airspace System Plan (NASP) on productivity, and the amortization of facilities and equipment (F&E). Each of these issues is briefly addressed below.

1.2.1 Inflation

Future inflation will affect not only the size of FAA budgets, but also the allocation of costs among users. This is true because not all users consume the same mix of FAA services. For example, general aviation users of the airport and airway system consume relatively more air traffic control services than facilities and equipment services. Higher inflation in the cost of operating ATC sites would have a more immediate impact on general aviation's share of the FAA budgets than an increase in the cost of F&E. The reverse would be true of air carriers, which consume a relatively large share of F&E.

Shown in Table 1.1 are the inflation assumptions used for future cost projections.

Table 1.1
INFLATION RATE ASSUMPTIONS

	<u>1985-1992</u>	<u>1993-1997</u>
Labor	3.5%	4.6%
Other Cost Centers	FAA Projections	4.6%

The 3.5 percent annual inflation rate for the period 1985-1992 is consistent with the most recent 1986 Economic Report of the President. For the years following 1992, the producers price index projections made by Wharton Econometric Forecasting Associates¹ were employed. This latter set of projections was selected because government labor costs seem to closely correspond to changes in this index. For example, over the period 1975 through 1985, general government salaries increased by a rate almost identical to the producers price index.

The FAA budget office makes projections of the other FAA cost centers--F&E, R&D, and airport grants, as well as the total O&M budget. These projections were used to govern planned spending levels for these cost centers for the period 1985 through 1992. Thereafter, projections were unavailable, and future costs were assumed to increase at the same rate as FAA labor.

1.2.2 Activity

The FAA makes projections of activity at its operating sites. These projections were used in the present study, and are summarized in Table 1.2.

Table 1.2

INDICES OF FUTURE ACTIVITY
(1985=100)

	<u>1992</u>	<u>1997</u>
ARTCCs	125.4	139.1
FSSs	114.5	123.3
TRACONS	121.8	135.7
Towers	134.3	150.3

As can be seen, the most dramatic growth is projected to take place at FAA towers, where activity will increase by 50 percent by the year 1997 over 1985 levels. Thirty-nine percent increases are forecast at ARTCCs while TRACONS should see increases of nearly 36 percent. FSS services are predicted to grow 23 percent during the same time period.

1.2.3 Effect of NASP Productivity

By the year 1992, new technologies contemplated under the National Airspace System Plan should be initiated.² The new technologies put into place will affect both air traffic control labor productivity, and also the productivity of those FAA personnel performing maintenance at ATC facilities. In order to identify the impacts of NASP productivity, cost functions for the

year 1992 were developed for ARTCCs, FSSs, TRACONs and towers. These cost functions show the relationship between projected cost and activity, and more specifically identify future marginal costs.

The result of this analysis shows that for the most part new technologies will lower unit costs of production at FAA facilities. For users of each type of facility, the cost savings (in constant dollars) would approximate the following:

ARTCCs:	22-25 percent
FSSs:	36 percent
TRACONs:	5 percent
Towers:	9-34 percent

Details of these results can be found in Section 2.2.

1.2.4 Amortization of F&E

One methodological change for future years (as opposed to those presented in Volume 1) pertains to the amortization of F&E. The 1978 FAA cost allocation study did not amortize F&E; instead, expenditures were expensed in a single year. Expensing may lead to a misidentification of actual attributable costs because capital is consumed over time and not in a single year. For example, suppose the FAA spends money on capital equipment at a certain site in one year and then spends nothing on capital in the next three years. If users pay for that capital in the same year, then all future users would enjoy its benefits free of charge. Arguably, such a treatment is inequitable if it does not reflect the actual consumption of the capital services produced.

In the present study, future FAA F&E budgets are amortized over a 13 year period, which corresponds to the average

replacement rate of airway capital equipment. Near-term F&E costs are relatively large by historic standards. The amortized F&E results were, therefore, accumulated in such a way as to estimate a constant annual F&E budget over the period. This was done to estimate future revenues to accommodate relatively high F&E costs attributable to near-term NASP expenditures. Details on this procedure can be found in Section 2.3 and in Appendix A of this volume.

1.2.5 Summary of Results

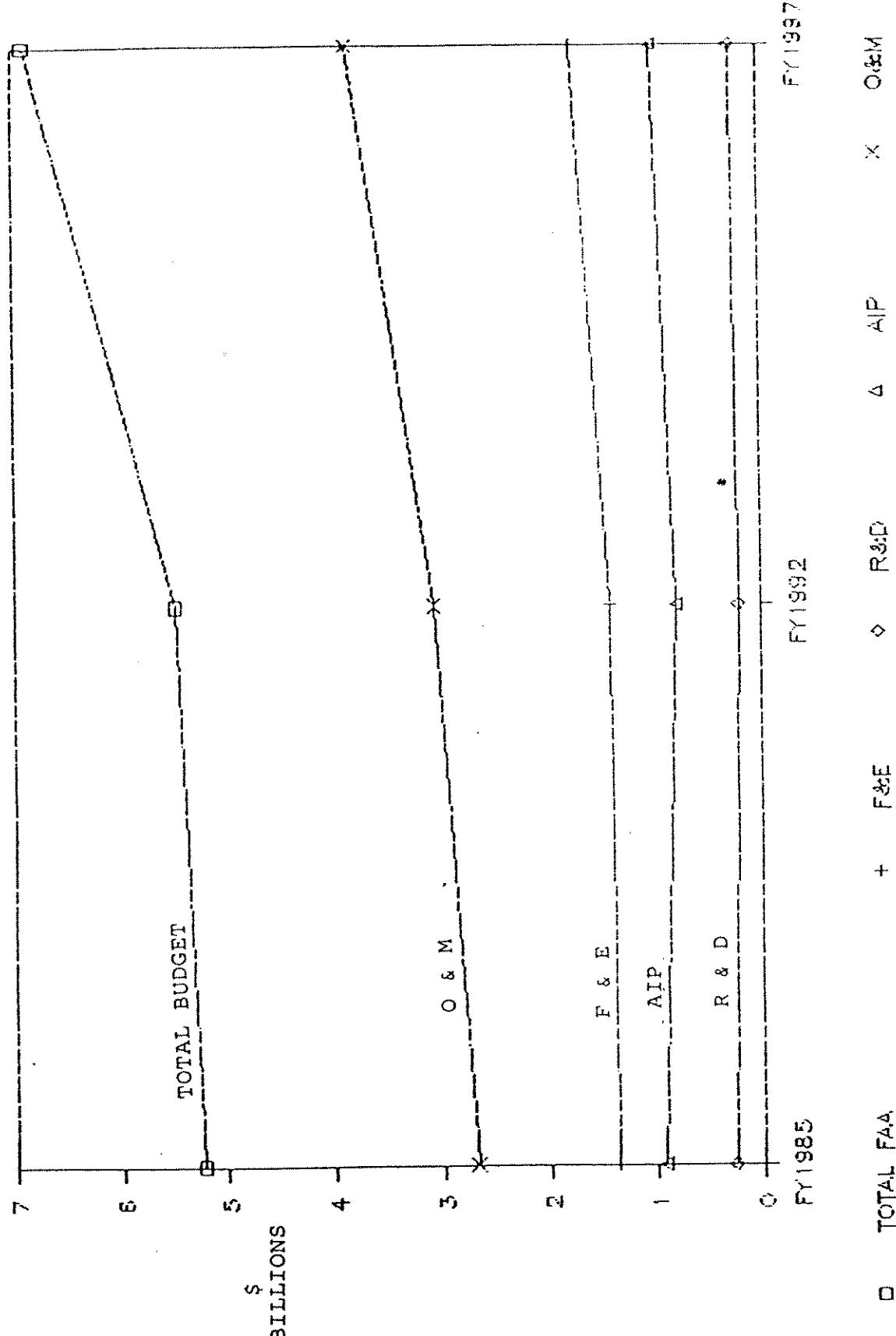
Shown in Figure 1.1 are the projections of the major FAA cost centers over the period 1985 through 1997. During that time period, these budgets are projected to grow at the following annual rates:

O&M	3.1 percent
F&E	2.3 percent
R&D	0.0 percent
Airport Grants	0.7 percent

During that same time period, the shares of air carriers and general aviation users are projected to increase slightly, while the shares of public sector users are projected to fall. The relative decline in the public sector's share of the FAA budget reflects the projected constancy of military activity at FAA operating sites.³ During the period 1985 through 1997, air carrier and general aviation operators will increase activity at all FAA operating sites. As a result, the relative share attributable to the public sector, which is dominated by the military, declines.

Figure 1.1

FAA BUDGET PROJECTIONS



The actual allocations for the years 1985, 1992, and 1997 are shown in Figures 1.2 and 1.3. The former chart pertains to the case where regulatory costs are allocated to users, while the latter pertains to the situation where these costs are allocated to the public. The relative decline in public sector shares is evident in both charts.

Finally, the minimum general aviation allocation is projected to increase from approximately 11 percent to approximately 14 percent in the time period 1985 through 1997. This occurs for two reasons: first, because of the relative decline in military activity, and second because the increase in general aviation activity causes a relative increase in the size of the minimum GA allocation over time. The latter occurs because general aviation consumes a relatively large share of air traffic services (ATC) relative to other services produced by the FAA. ATC services are projected to grow more rapidly than other demands on FAA resources.

1.3 References to Other Volumes

Descriptions of the databases which form the basis for the cost allocations reported in this volume can be found in Volume 6. Detailed discussions of the methodology are presented in Volume 1. User tax options based on results in Volumes 1 and 2 are reported in Volume 4.

Separate volumes have also been developed on public sector cost categories and on econometric cost estimation techniques. These are Volumes 3 and 5 respectively.

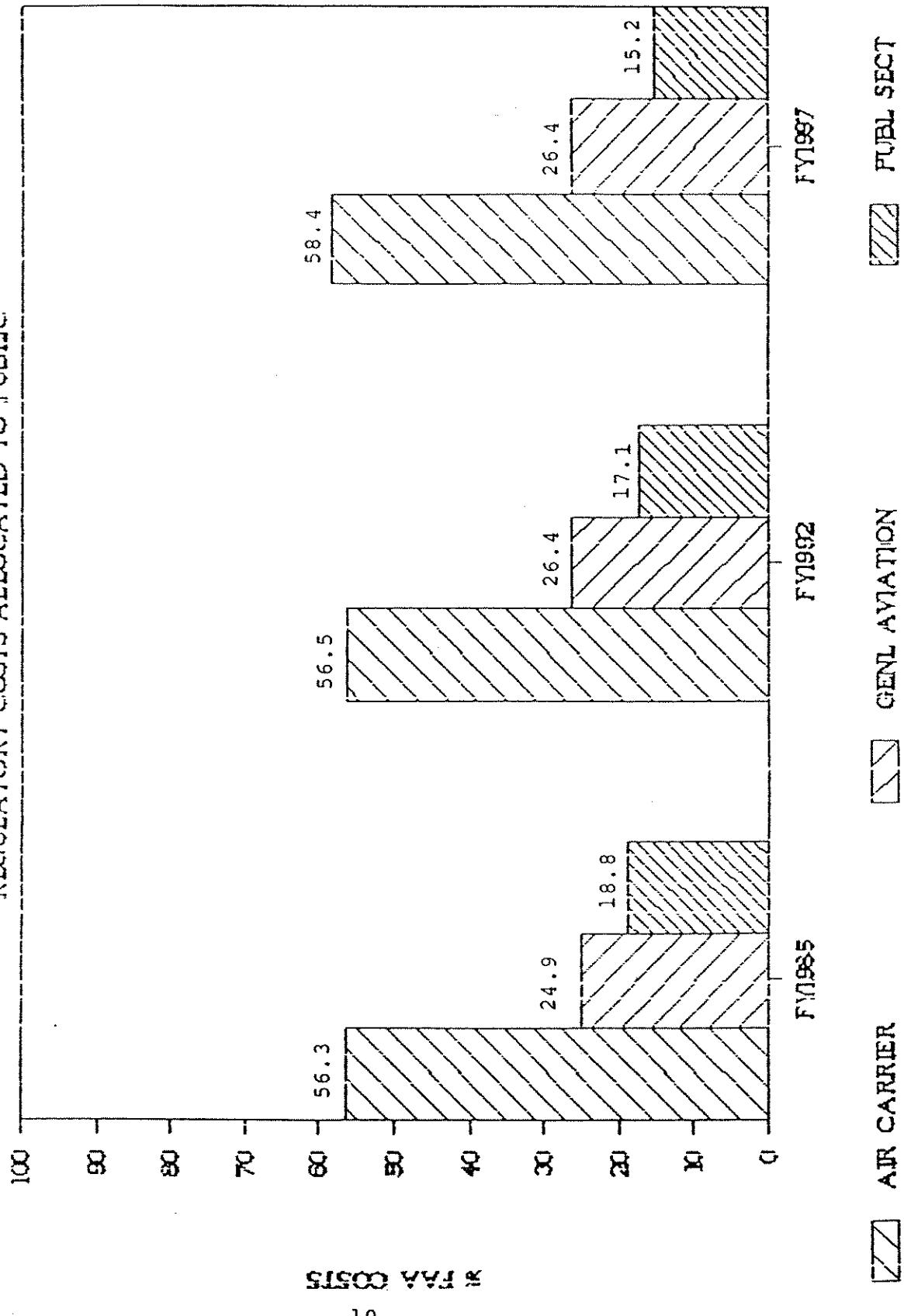
Figure 1.2

ALLOCATION OF FAA COSTS
REGULATORY COSTS ALLOCATED TO USERS



Figure 1.3

ALLOCATION OF FAA COSTS
REGULATORY COSTS ALLOCATED TO PUBLIC



1.4 Organization of the Remainder of This Volume

Section 2 reviews the methodologies used to project FAA budgets and allocations in the future. Included are discussions of the 1992 cost functions, and the method for amortizing F&E. Section 3 presents a review of future allocations for the entire budget, and subcategories of the budget. Detailed presentations of results for each of the years from 1986 through 1997 are found in Section 4. Included here are the allocations of both direct and indirect cost to each of the ten user groups included in this study, as well as a detailed presentation of the minimum general aviation allocation.

Also included in this volume as Appendix A is a more rigorous examination of the reasons and methods for amortizing F&E.

Section 2.0

METHODOLOGY

This section reviews the methodology of the allocations of the FAA budgets for the years 1985 through 1997. The focus in this report is on the methods for projecting budgets and allocations into the future. Details of the other aspects of the methodology are presented in Volume 1.

The discussion begins with a general overview of methodologies. This is then followed by a discussion of the 1992 econometric results, and the methodology employed to amortize FAA F&E. Further details of the last topic are presented in Appendix A.

2.1 Projection and Allocation of Major Budget Categories

Shown in Table 2.1 is a summary of the methods for projecting and allocating major FAA budget categories in the future. The allocation method for future years is the same as in the base year 1985. Included in this chart are the definitions of each budget category, the allocation methodology employed, and the projection methods for two time periods: 1986-1992, and 1993-1997.

The FAA budget is divided into four general budget categories:

- o Operations and Maintenance (O&M),
- o Facilities and Equipment (F&E),
- o Research and Development (R&D),
- o Airport Grants.

Each of these general budget categories is projected in the same manner as in the base year 1985. For the period 1986 through 1992, FAA budget projections were employed. For the period 1993 through 1997, a 4.6 percent annual inflation rate was assumed. The latter corresponds to the projected increase in the producer's price index in the same period.⁴

The O&M budget contains a variety of activities which have been segregated into subcategories: operating sites, safety regulation, NAVAID maintenance, and indirect costs. The projection methods for these O&M categories are also discussed in Table 2.1. As was noted previously, labor costs are assumed to increase at a 3.5 percent annual rate in the earlier time period, and then at the 4.6 percent rate between 1993 and 1997. Other notable aspects of the projection of these budget subcategories are as follows:

- o Operating Sites: Future costs of operating sites depend upon the realization of efficiency benefits of the NASP. These efficiency benefits are identified through the estimation of 1992 cost functions for each type of operating site. These cost functions are discussed in greater detail in Section 2.2. The efficiencies are assumed to begin in FY86, and are phased in evenly until they are fully realized in 1992.⁵
- o NAVAID Maintenance: This subcategory is affected by reductions in the cost of maintaining air traffic control systems attributable to new technologies being put in place.

Table 2.1
PROJECTION AND ALLOCATION OF MAJOR BUDGET CATEGORIES

Budget Category	Definition	Projection Method 1986-1992	Projection Method 1993-1997	Allocation Methodology
Total O&M	Includes operating sites, regulatory activities, maintenance and overhead items	FAA budget projections	4.6% annual inflation	Subcategories are allocated individually
Operating Sites	Includes labor cost of operating and maintaining ARTCCs, FSSs, Towers and TRACONS	Based on 1984 and 1992 cost functions, FAA activity forecasts, and projected annual inflation of 3.5%	Based on 1992 cost functions, FAA activity forecasts, and 4.6% annual inflation	Variable costs allocated as the product of marginal costs and user group activity. Site joint costs allocated based on Ramsey pricing
Safety Regulations	Includes aviation standards inspection and airport security, and the regulation of airports	Projected annual inflation of 3.5%	4.6% annual inflation	Allocated as a joint cost, or to the public sector depending on the scenario
All Maintenance	All maintenance labor not attributable to operating sites	Projected annual inflation of 3.5%, and effect of NASP on maintenance costs	4.6% annual inflation	Allocated as a joint cost
Indirect Cost	Headquarters and regional administration, procurement and other indirect items	A residual based on (Total O&M - operating sites - safety regulations - Navaid maintenance)	A residual based on (Total O&M - operating sites - safety regulations - Navaid maintenance)	Allocated to other cost centers based on allocation statistics; and then to users as a joint cost
R&E	Airway capital costs	FAA budget projection; amortization schedule	4.6% annual inflation	Allocated to categories of users based on purpose of projects; amortized; and then allocated as a joint cost
R&D	Applied research to improve ATC services, or safety	FAA budget projections	4.6% annual inflation	Allocated to categories of users based on purpose of projects and then allocated as a joint cost
Airport Grants	Grants made to airports primarily for capital improvements	FAA budget projections.	4.6% annual inflation	Allocated to categories of users based on purpose of projects, and then allocated as a joint cost

- o F&E: As was noted previously, future F&E budgets are affected by the amortization techniques developed for this project.

2.1.1 Allocation

Also shown in Table 2.1 are the allocation methodologies employed in the study. The methods employed are exactly the same as those used in the FY1985 allocation, except for the amortization of F&E. For example, the variable costs at ATC operating sites are allocated by estimating the marginal cost for each user group, multiplying that cost by the group's activity, and summing over all user groups. Joint costs at these sites are allocated using Ramsey Pricing. Funds for research and development are allocated to user categories to the extent made possible by the stated purposes of the projects. Projects which cannot be allocated in this way are treated as joint costs. Detailed descriptions of these methodologies, and the others listed in the table can be found in Volume 1 of this study. The methodology for amortizing F&E expenditures is detailed in Section 2.3 of this volume.

The discussion now turns to two issues that are important in understanding the future allocations. The first is the 1992 cost functions for FAA operating sites; the second pertains to the reasons and methods for the amortization of F&E.

2.2 1992 Cost Functions

In order to evaluate the impact on labor productivity of the installation of new equipment, it was necessary to estimate cost

functions for ARTCCs, FSSs, TRACONs, and towers which reflected the impact of the new technology. The same techniques were used to estimate these cost functions as those developed in Volume 1. Only new datasets were required to develop these cost functions.

The data required to develop these cost functions are briefly described below:

- ATC Labor: As part of the planning process for the NASP, FAA has developed new staffing standards for the new facilities. These staffing standards were used to derive estimates of air traffic control labor at each operating site.
- Airway Facility Labor: As part of the planning process for the NASP, FAA has developed a forecast of the Facility Master File which identifies the location of all equipment at ATC operating sites. The number of labor hours to maintain each piece of equipment in the forecast FMF was used to develop approximations of the full-time equivalent personnel required to maintain each ATC operating site.
- Labor Costs: FAA labor costs were assumed to increase at a 3.5 percent annual rate in the period 1985 through 1992, and 4.6 percent in the latter period.
- Leased Telecommunications: One of the effects of the NASP will be to reduce the FAA's dependence on leased telecommunications. The relatively minor costs exhibited in 1984 should decline by 1992. No data were available on these costs in the future.

- o Activity: FAA projections of future activity were employed; adjustments to these forecasts were made in the same manner as described in Volume 1.

The results of the econometric analysis are shown in Table 2.2 together with a comparison of the results for 1984. All of the estimates are expressed in 1986 dollars. In general, the effect of the new technology will be to reduce the unit cost of FAA output. In part, the reduced unit cost may be due to the "larger size" of each facility. For example, FSS locations are scheduled to be reduced in number, and increased in size by 1992. The combination of improved technology, and larger sized facilities may account in part for the reduced unit costs. It also may be reflected in the increases in joint costs at each site reflected in the 1992 results.⁶

It should be noted that the econometric results for 1992 are used in both the 1985-1992 time period, and the 1993-1997 time period. In the former, it is assumed that one-seventh of the circa 1992 equipment is installed in each of the years from 1986 through 1992.⁷ A proportional increase in labor productivity is assumed to coincide with installation. In the latter time period, the 1992 econometric results are used exclusively, and the marginal costs are increased each year to account for inflation.

2.3 Amortization of F&E

The F&E cost category in the FAA budget includes virtually all of the capital expenditures made for the air traffic control system each year. By definition, capital assets are those which

Table 2.2
COMPARISON OF 1984 AND 1992 OPERATING SITE COSTS
(1986 Dollars)

	<u>ARTCCs</u> (Handles)		<u>FSSS</u> (Services)		<u>TRACONS</u> (TSOs) *		<u>Towers</u> (Operations)	
	1984	1992	1984	1992	1984	1992	1984	1992
Marginal Costs								
- Air Carrier	\$14.42	\$10.86	\$6.69	\$4.27	\$13.25	\$12.55	\$8.19	\$8.48
- Commuters	\$14.42	\$10.86	\$6.69	\$4.27	\$13.25	\$12.55	\$1.93	\$1.75
- General Aviation	\$13.07	\$10.86	\$6.69	\$4.27	\$3.56	\$4.72	\$1.49	\$1.16
- Military	\$22.05	\$17.29	\$6.69	\$4.27	\$13.25	\$12.55	\$4.61	\$3.05
Joint Costs Per Site	\$4,225,062	\$5,865,511	\$93,066	\$477,317	\$880,073	\$1,308,847	\$400,155**	\$519,151**
R-Squared	.896	.872	.929	.897	.867	.804	.555	.763

* TSO's equal operations, seconds and overs at TRACON's.

** Level 1 Tower joint costs are \$85,133 lower in 1984 and \$252,713 lower in 1992.

are not fully consumed by users in a single year. It is desirable to identify how much capital is consumed in a year by each user group in order to evaluate both the varying consumption patterns exhibited by users over time, and the impact of F&E expenditure patterns on user group consumption.

In the present study, future users will be allocated the costs of capital projects as they use them. This is a departure from traditional financial reporting, which is typified by historic depreciation schedules. The approach proposed here is more consistent with the problem faced by the FAA: to account for the consumption of capital in such a way that it can be replaced as it wears out.

It is important to focus on two key components of capital consumption: depreciation and the cost of capital. The former represents the value of capital consumed in a particular time period. Depreciation should be valued to reflect the replacement cost the asset. If an existing asset put in place in year one must be replaced in year three, the cost of that replacement would be affected by both technological change and by the rate of inflation. If replacement costs are not considered, insufficient funds may be set aside to replace the capital as it wears out.

The cost of capital represents the opportunity cost of employing the capital in FAA facilities instead of employing it elsewhere. The time value of money embedded in a capital project is a real cost since there are alternative uses of those funds. Therefore, capital consumption should include not only depreciation, but also the cost of capital.

Finally, since user taxes will be based in part upon the amortization schedule to be developed in this study, it is desirable that the pattern of payments made for recovery be relatively even. It would be difficult to administer taxes which vary year-to-year.

In order to accommodate these concerns, the following amortization procedures were employed in this study.

- o Step 1: Projected future F&E expenditures were amortized in the future.
- o Step 2: The resulting yearly allocations were discounted back to the present time.
- o Step 3: A "mortgage" payment schedule was derived in order to make the annual F&E allocations even.

The effect of this procedure is to recognize the future consumption patterns of F&E, and to take specifically into account the replacement costs of capital, and the cost of capital. In order to allow for an even tax schedule over time, the amortization schedules are discounted back to the present time, and then an even schedule of F&E allocations is derived.

The key assumptions in this analysis are shown below in Table 2.3.

Table 2.3

KEY COMPONENTS OF AMORTIZATION ANALYSIS

Amortization Schedule	13 years
Cost of Capital	10 percent
Replacement Costs	FAA Future F&E Projections
"Mortgage" Rate	10 percent
Duration of Mortgage	1986-1997

The amortization schedule selected was 13 years. This is the approximate average useful life of FAA airway facilities and equipment, as evidenced by expenditure patterns over time.⁸ The cost of capital utilized in the analysis is 10 percent, which is the standard OMB discount rate. Replacement costs are based on projected FAA F&E budgets. The mortgage rate of interest is 10 percent, which was selected in order to be equal to the OMB discount rate, which is the opportunity cost of money to the government. The duration of the mortgage was for the period 1986 through 1997--the period of time over which the amortization technique is employed.

Details of the amortization procedure can be found in Appendix A of this volume. The discussion now turns to specific results for major FAA cost categories over the period 1985 through 1997.

SECTION 3.0

REVIEW OF RESULTS

This section of the report briefly reviews the changes in the allocation of major FAA budget categories and in the allocations to users over time. The purpose of this discussion is two-fold. First, user groups consume different amounts of the services produced by FAA cost centers. Examining these differences provides additional insight into the allocation of all FAA costs to user groups. Second, there are some changes in the distribution of costs among user groups forecast for the future. These changes are highlighted in the discussion below.

3.1 Comparison of 1985 and 1997 Allocations

The allocations for the major cost categories for 1985 and 1997 are shown in Table 3.1. Costs are allocated in each category to air carriers, general aviation, and the public sector. In those cases where ranges of results are shown, the allocations depend upon whether regulatory costs are allocated to users, or to the public sector. Air carrier and general aviation allocations are higher when regulatory costs are allocated to users; public sector allocations are higher when regulatory costs are allocated to the public sector.

One trend is apparent in the table. The public sector share of costs is declining over time. As noted in Section 1.0, this

occurs because military operations are forecast to remain almost constant in the future, while general aviation and air carrier operations will increase. The result is a relative decline in the costs attributable to the military, and therefore to the public sector.

What follows is a brief discussion of each of the major cost categories.

- o ARTCCs: The majority of these costs are attributed to air carriers who are the most intensive users of ARTCC facilities. Over time, the public sector shares decline, with the remainder being split approximately equally between air carriers and general aviation.
- o FSSs: The major beneficiaries of FSS services are general aviation users who are allocated the vast majority of these costs. Over time, air carriers' shares remain relatively constant. General aviation utilization of FSS services is forecast to grow in the future with the result that its share increases directly with the decline of the public sector's share.
- o Towers: The majority of tower costs are attributable to general aviation in both 1985 and 1997. The decline in the public sector's share is approximately evenly split between air carriers and general aviation.
- o TRACONs: The majority of TRACON costs are attributable to air carriers. By 1997, there is forecast to be a relative increase in the cost of serving general aviation at TRACON facilities, and an increase in general aviation activity at these

Table 3.1
ALLOCATION OF MAJOR FAA COST CENTERS
1985 and 1997

-----1985-----				-----1997-----			
	Air Carrier	GA	Public Sector	Air Carrier	GA	Public Sector	
<u>O&M</u>							
o ARTCCs	53.6%	24.0%	22.4%	57.0%	26.3%	16.7%	
o FSSs	10.9	76.5	12.7	10.8	79.5	9.7	
o Towers	17.3	65.9	16.8	20.8	67.9	11.3	
o TRACONS	62.9	20.9	16.2	61.9	28.1	10.0	
o NAVAID Maintenance	52.8	26.9	20.4	56.6	29.3	14.1	
o Regulations	0-62.4	0-31.7	5.9-100.0	0-63.6	0-32.0	4.4-100	
o Indirect Costs	46.8- 51.3	27.3- 29.1	19.6-25.9 25.9	50.1- 54.9	29.1- 31.1	13.9- 20.8	
<u>F&E</u>	71.3	16.3	12.4	78.6	13.7	7.7	
<u>R&D</u>	83.7-88.1	5.1-7.5	4.4-11.3	70.8-75.6	14.8-17.3	7.1-14.4	
<u>Airport Grants</u>	65.6	33.0	1.5	66.0	32.8	1.2	

facilities. The result of these two trends is an increase in general aviation's share of TRACON costs, while the shares of both air carriers and the public sector users decline.

- NAVAID Maintenance: The majority of these maintenance costs are attributable to air carriers. As the public sector's share declines over time, the shares of both air carriers and general aviation increase about equally.
- Regulations: In the case where regulatory costs are allocated to users, the majority is attributable to air carriers. There is only a modest decline in the public sector's share over time which is split about equally between air carriers and general aviation.
Under the scenario when regulatory costs are deemed to be in the public interest, the total budgets in both 1985 and 1997 are allocated to the public sector.
- Indirect Costs: Indirect costs are allocated to other cost categories based upon allocation statistics, and then to users as a joint cost. The changes shown in the table are due to the expected constancy of military operations over the time period.
- F&E: The key distinction between 1985 and 1997 results is that future F&E is amortized, while the 1985 results are not. This factor together with the expected decline in the public sector's share by 1997 results in a large increase in air carrier share of F&E in 1997. General aviation's share also declines by 1997.

- o R&D: The results shown in the table are due to the changes in the composition of R&D over time. Most near-term R&D projects are attributable to the air carriers. In the long run, however, a greater share is attributable to general aviation, and to the public sector (despite the expected decline in military operations).
- o Airport Grants: The allocations for airport grants are relatively constant over time. This is expected because the distribution of grants is assumed to be constant over time.

While reviewing the results in Table 3.1, it should be borne in mind that four of the cost categories account for most of the FAA budget: ARTCCs, TRACONS, F&E, and Airport Grants. The relative stability in these budgets accounts for the stability of the shares among the user groups over time.

3.2 Detailed User Allocations for 1985, 1992 and 1997

Allocations were made to ten user groups in the cost allocation study. In addition to the public sector costs attributable to the use of the airport and airway system by civil government and military users, some costs were also allocated to the public interest. These latter costs are also allocated to the public sector in the study. In this section, the allocations to the ten user groups and the public interest are shown for three years: 1985, 1992, and 1997.

The presentation is made through a series of bar charts.

Separate charts are presented for each of the three major user categories: air carriers, general aviation, and the public sector. Also shown with these charts are the total allocation to the major user categories, presented in the form of pie charts.

Two sets of charts are needed for each major user category. In all cases, the first chart pertains to the case where regulatory costs are allocated to users, while the second chart pertains to the scenario when regulatory costs are allocated to the public sector.

What follows is a discussion of the trends in the allocations to user groups over time.

3.2.1 Air Carriers

There are four air carrier user groups included in this study:

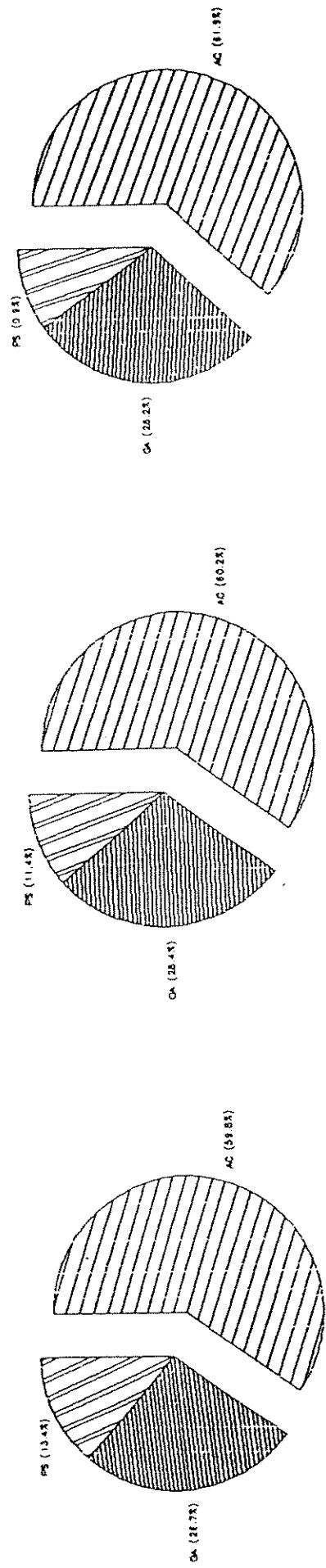
- o AC-D: domestic air carriers,
- o AC-I: international air carriers,
- o AC-F: freight air carriers,
- o COM: commuters.

The allocations for the three years of interest are shown in Figures 3.1 and 3.2. It is apparent in both charts that there is a substantial increase in the allocation of FAA costs to commuters over time. This trend is consistent with the expected rapid growth in commuter operations in the future, and is part of a longer secular trend in commuter growth which began with the deregulation of the airline industry.

Another obvious result in both Figures 3.1 and 3.2 is the dominance of total FAA costs attributable to domestic air carriers. This result is expected because these carriers are the

Figure 3.1

ALLOCATION OF FAA COSTS
REGULATORY COSTS ALLOCATED TO USERS--FY1997



AIR CARRIER SHARES OF TOTAL FAA BUDGET

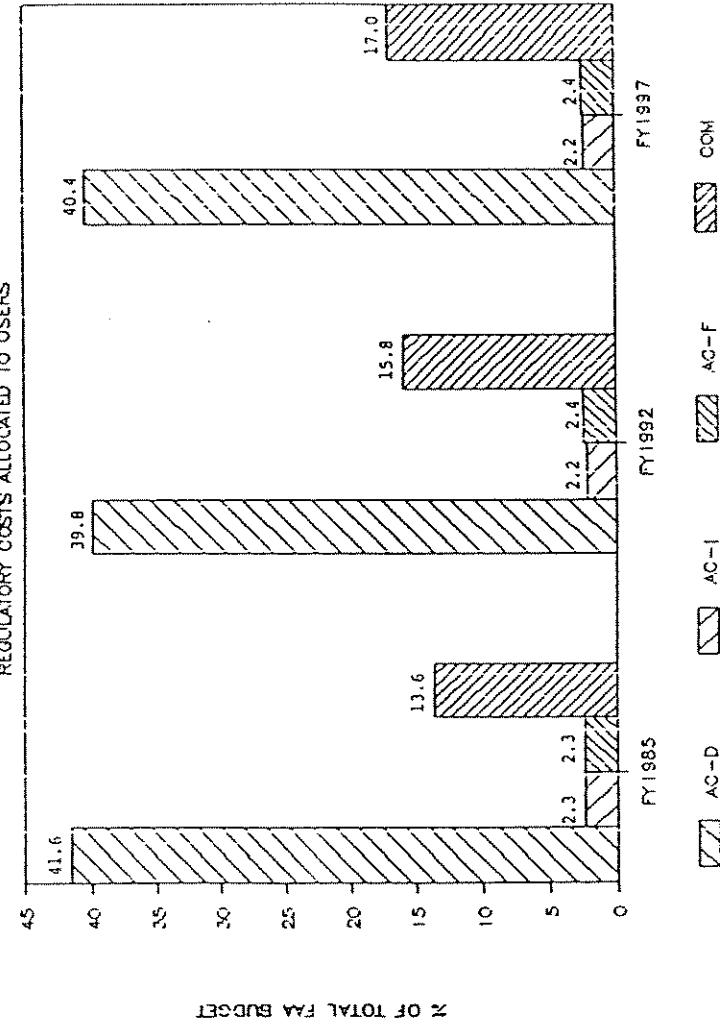
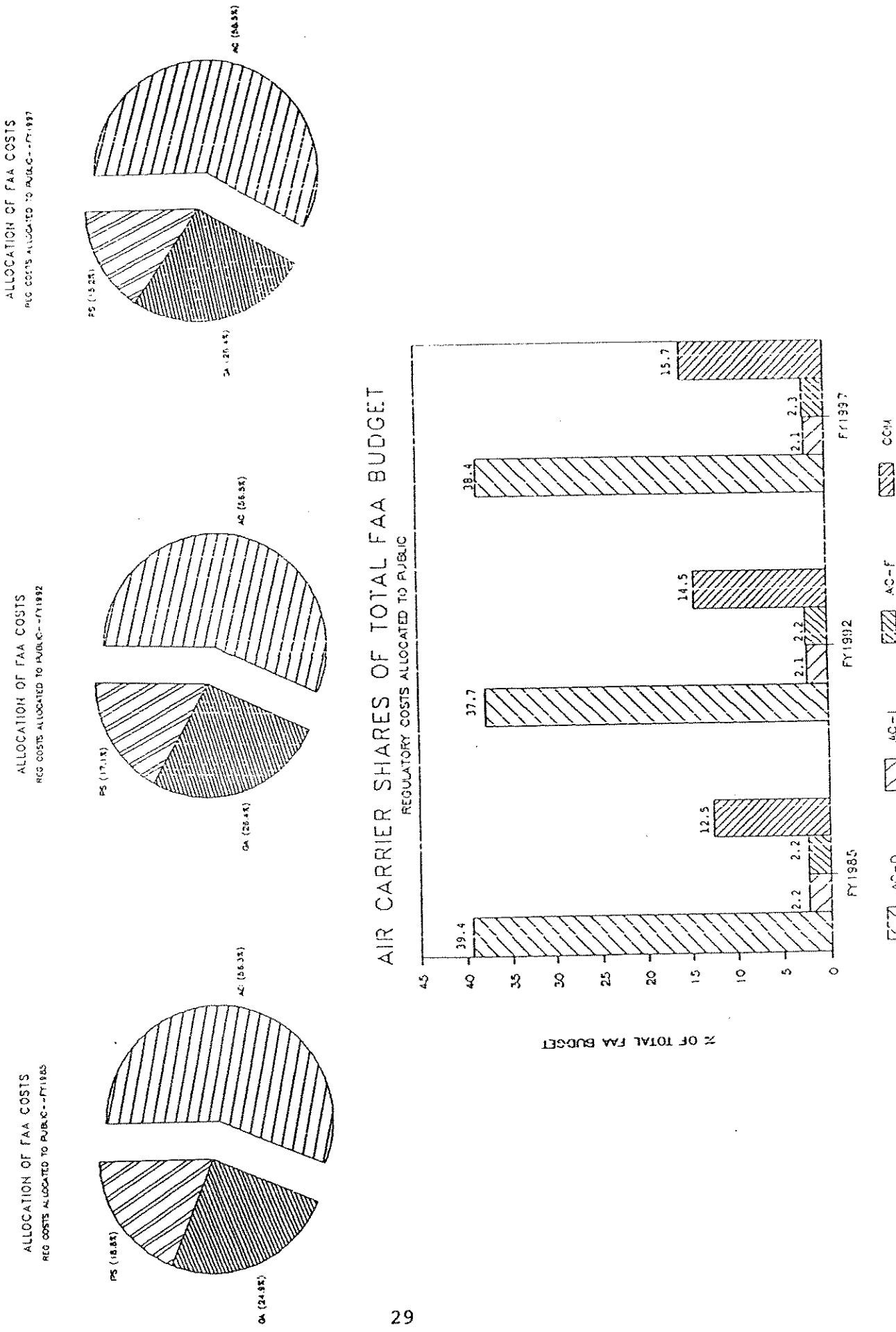


Figure 3.2



largest operators at ARTCCs and TRACONS--the two largest operating site cost centers. In addition, they are the chief beneficiaries of substantial portions of the F&E, R&D, and airport budgets. It is also interesting to note that the allocations for domestic air carriers remain relatively constant over time despite more rapid growth in operations by other user groups.

The allocations for international air carriers and freight air carriers are approximately equal, and remain approximately constant over time. Both groups exhibit relatively low levels of operations at FAA facilities. In addition, unlike domestic air carriers and commuter airlines, the avoidable costs of F&E, R&D, and airport projects are far less likely to be attributable to these two user groups.

As a group, air carriers account for between 60 and 62 percent of total FAA costs over the 1985 through 1997 time period under the assumption that regulatory costs are allocated to users. If the alternative scenario where regulatory costs are allocated to the public is examined, air carriers as a group account for between 56 and 58.5 percent of total FAA costs.

3.2.2 General Aviation

There are four user groups in the general aviation category:

- o AT: air taxis
- o GA-P: general aviation piston operators
- o GA-T: general aviation turboprop or turbo-jet operators
- o Rotor: operators of rotorcraft.

As a group, general aviation operators account for between 26.5 and 28 percent of total FAA costs under the scenario that regulatory costs are allocated to users. If, instead, regulatory costs are allocated to the public sector, general aviation as a group accounts for between 25 and 26.5 percent of FAA costs.

The results for the individual general aviation user groups for 1985, 1992, and 1997 are shown in Figures 3.3 and 3.4. It is obvious that more than half of general aviation's share of the total FAA budget is attributable to piston operators. This result is expected because piston operators account for the vast majority of total operations by general aviation users. The share of piston operators increases over time primarily because of the expected increase in operations by this user group.

Operators of turboprop and turbo-jet aircraft also account for an appreciable share of the total FAA budget. The more detailed allocations shown in Section 4.0 indicate that this user group's share of ATC operation costs will grow over time, even though its total share will fall slightly.

The share of FAA costs attributable to air taxi operators is expected to increase over time due to the relatively high growth rate in operations expected for this user group.

The relatively low share for operators of rotorcraft is due primarily to the fact that these aircraft use relatively modest amounts of FAA resources per flight. This is expected to continue in the future.⁹

3.2.3 Public Sector

The costs attributable to the public sector are divided into three categories:

Figure 3.3

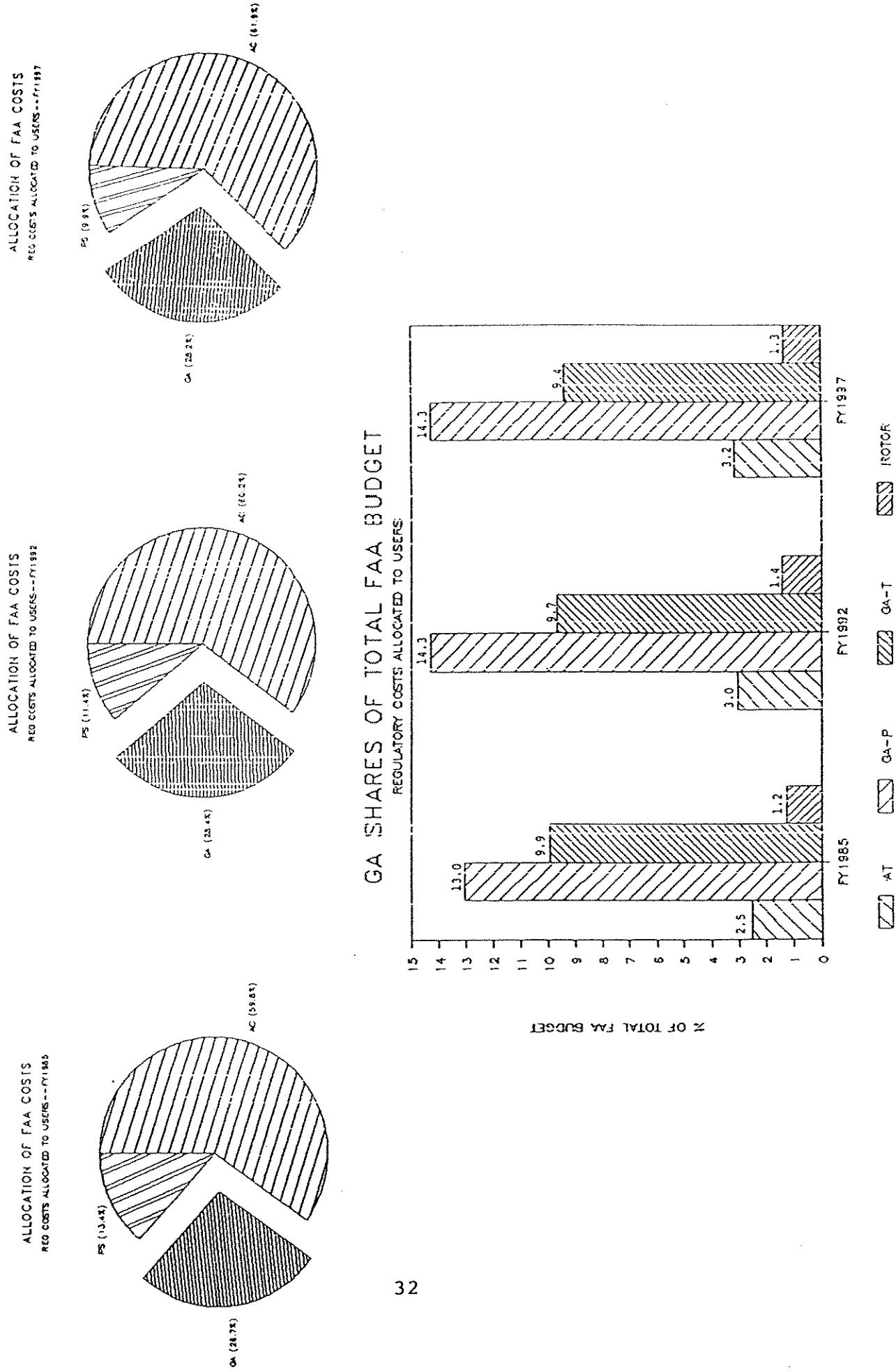
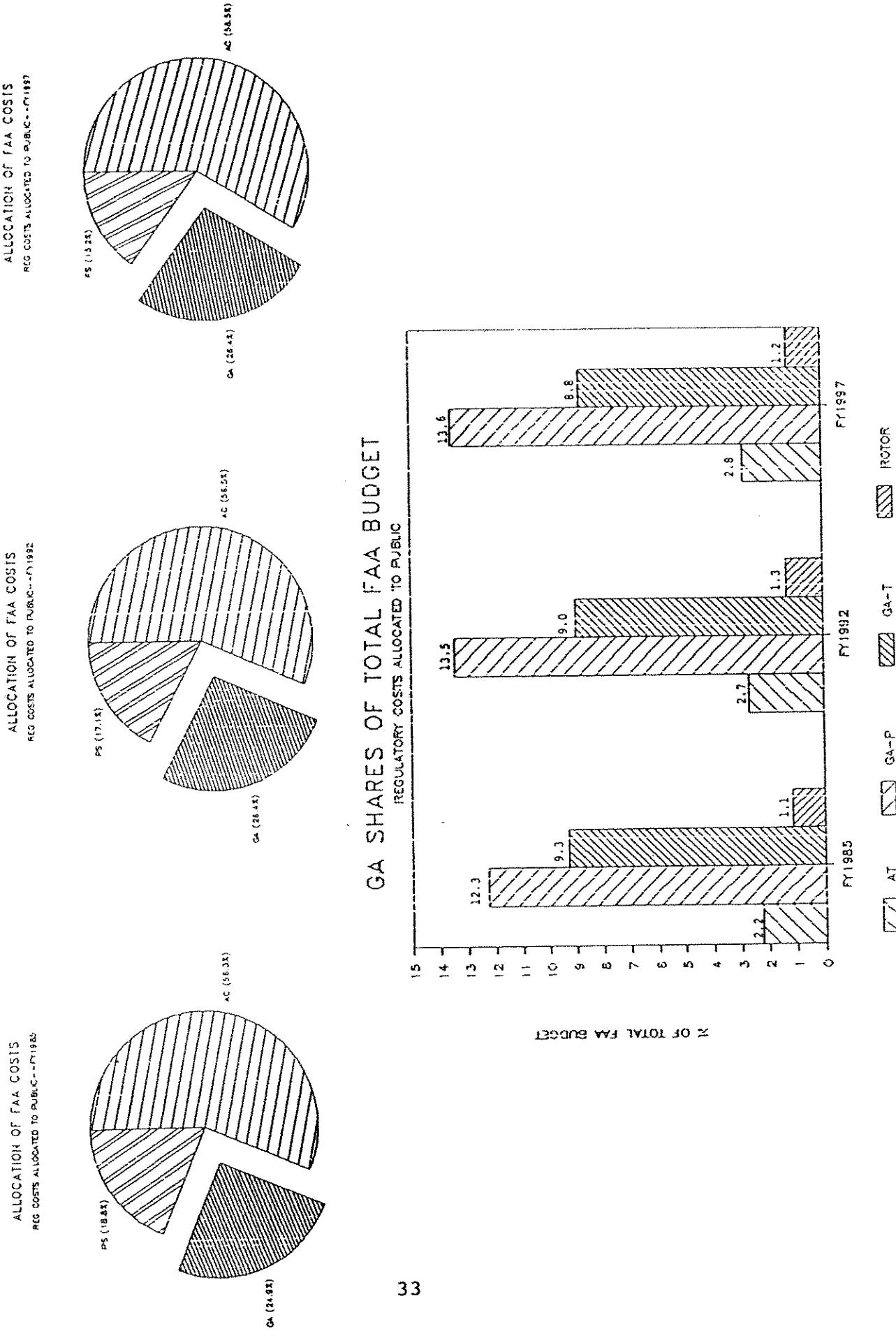


Figure 3.4



- o GOVT: operators of civil government aircraft,
- o MIL: operators of military aircraft,
- o PI: costs attributable to the public interest.

Under the scenario where regulatory costs are allocated to users, the public sector accounts for approximately 13.5 percent of total FAA costs in 1985, but only 9.3 percent in 1997. The decline is almost wholly attributable to the expected constancy of military operations, while the operations of other user groups are expected to increase.

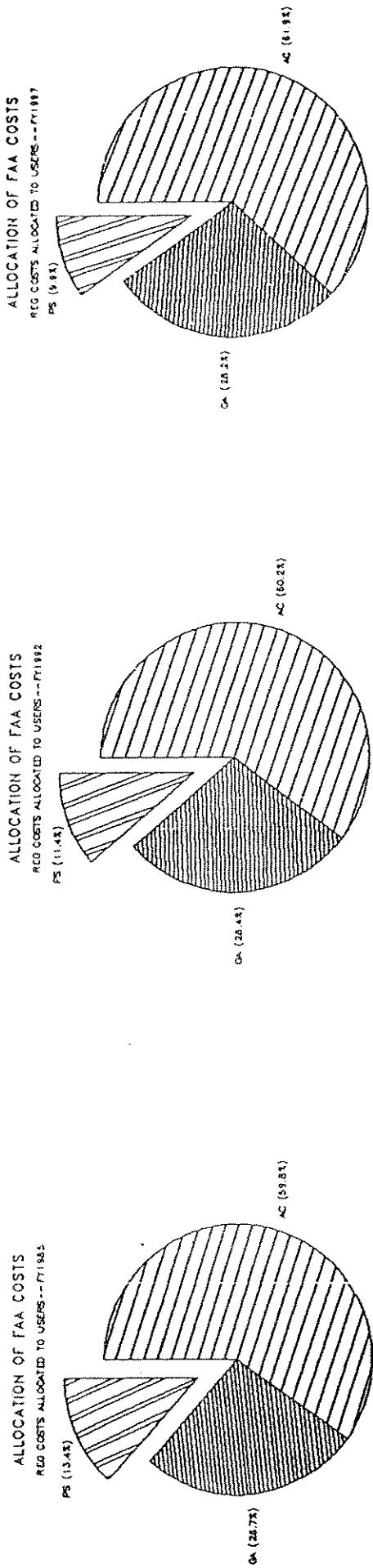
The same trend is evident when regulatory costs are allocated to the public sector. In this case, the public sector's share in 1985 is 18.7 percent, but declines to 15.2 percent in 1997.

Detailed results are shown in Figures 3.5 and 3.6. It is obvious in both charts that military operations dominate the public sector allocation. It is the expected relative decline in costs attributable to the military that results in the decline in the public sector's share over time.

The share attributable to civil government aviation is expected to remain constant over time. This is consistent with the assumption that civil government fleets and operations will grow in proportion with those of other civilian operators.

Finally, the share of the FAA budget attributable to the public interest is relatively constant under the scenario where regulatory costs are allocated to users. However, the public interest share does vary somewhat in the scenario where regulatory costs are allocated to the public. This is due to the variance in regulatory costs over time.

Figure 3.5



PUBL. SECTOR SHARES OF TOTAL FAA BUDGET
REGULATORY COSTS ALLOCATED TO USERS

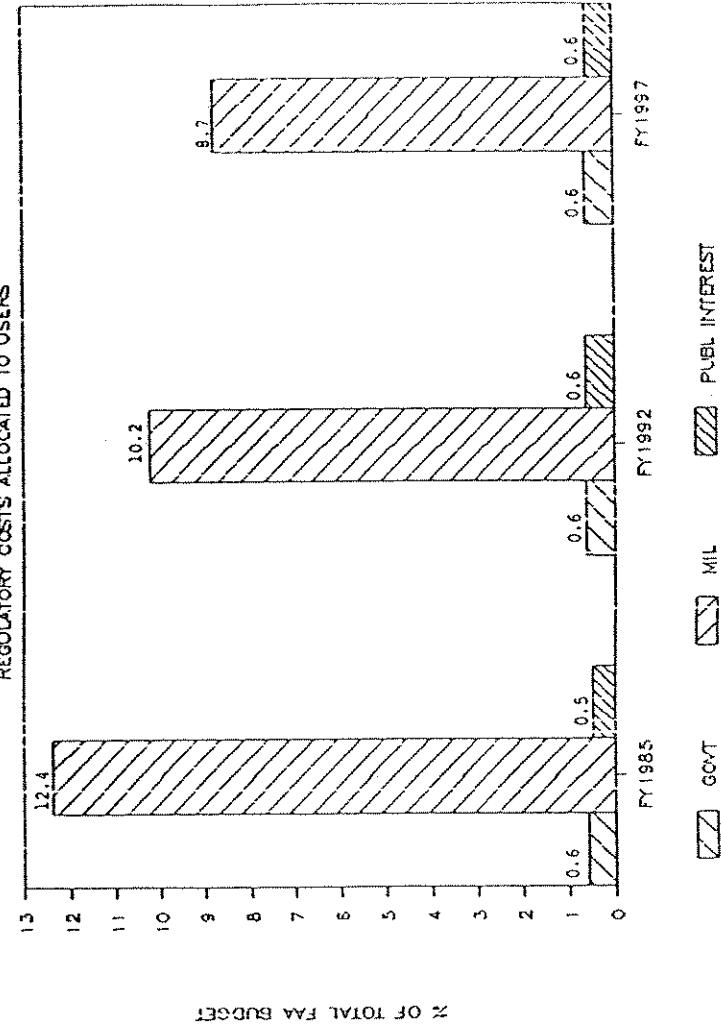
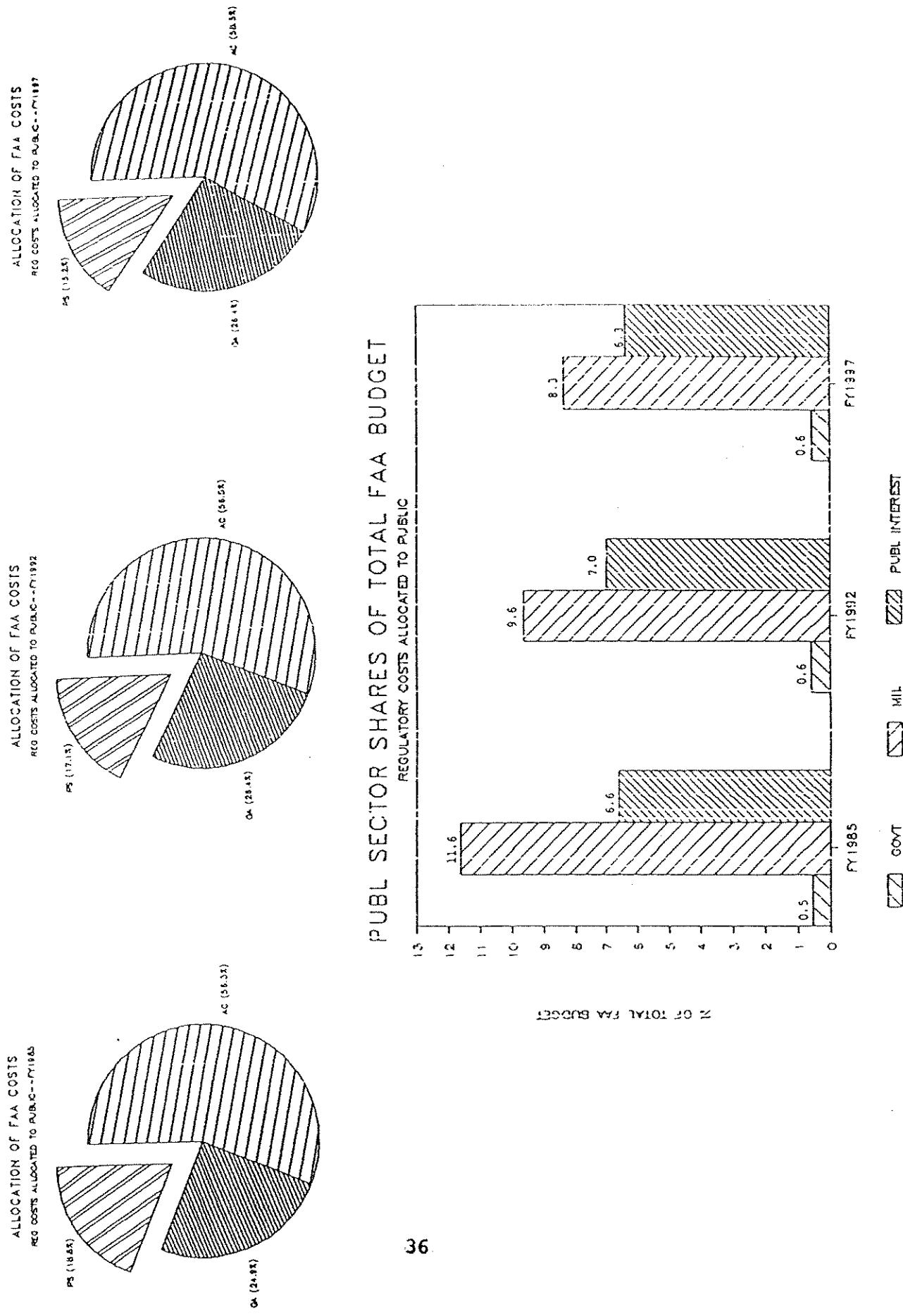


Figure 3.6



3.3 Minimum GA Allocations

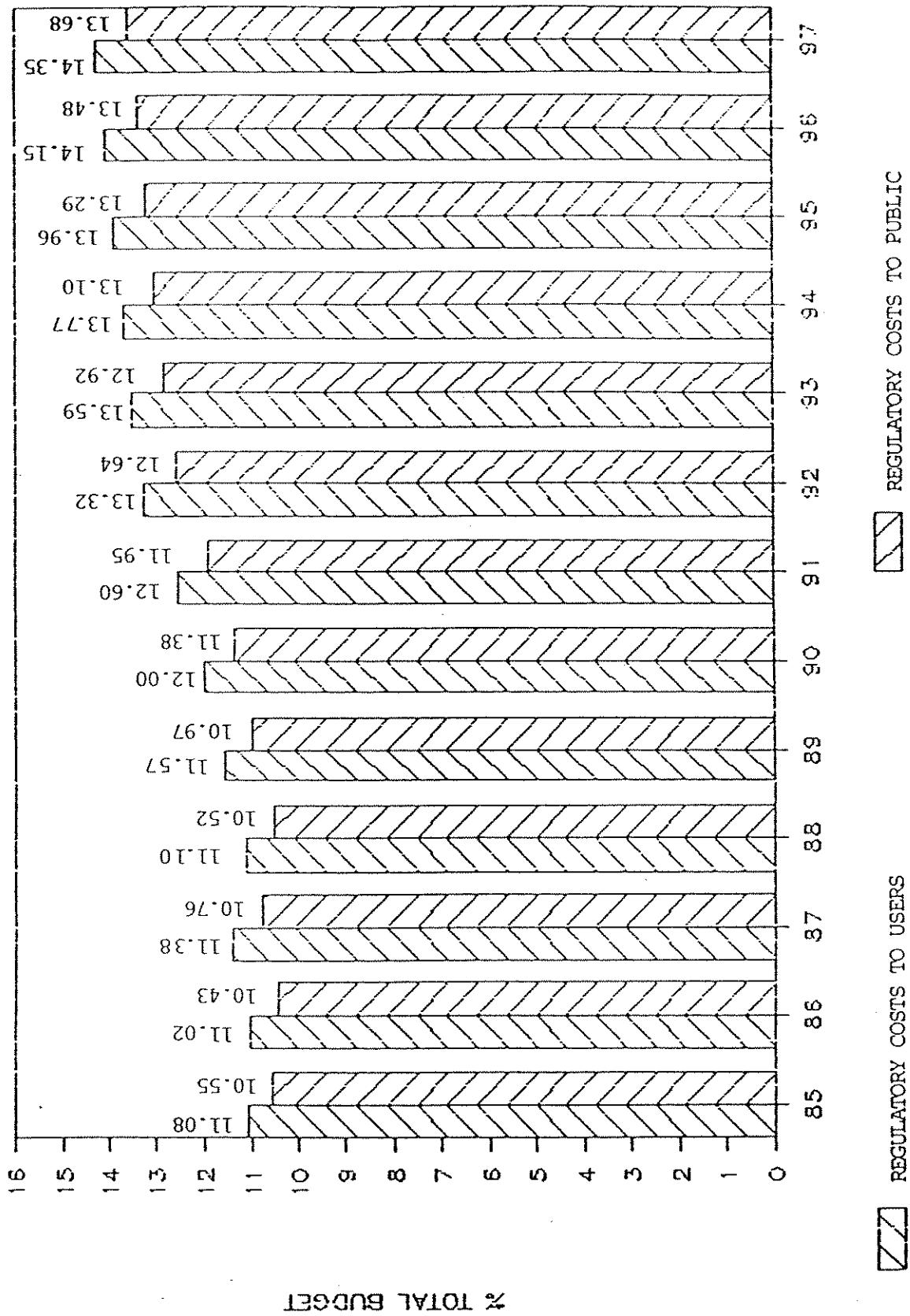
Shown in Figure 3.7 are the minimum general aviation allocations for the period 1985 through 1997. Section 3 of Volume 1 describes in detail the methodology used to develop the minimum general aviation allocation. Since this method relies heavily on FAA establishment criteria as they stood in 1985, it cannot be repeated exactly for future years. As traffic grows, the criteria are bound to change, but these changes cannot be predicted. Thus, the sites identified in the 1985 allocation are assumed to comprise the minimum system in all future years. However, the activity levels and marginal costs are assumed to change as described earlier in this volume. Consequently, the minimum system allocations for 1986-1997 are generated by applying projected activity levels and marginal costs to the sites identified in the base-year analysis.

As the table shows, the minimum general aviation allocation is projected to increase from approximately 11 percent to approximately 14 percent of the total budget over the period 1985-1997. This increase is attributable primarily to the relatively high growth rate in general aviation operations as projected by the FAA.

Figure 3.7

MINIMUM GA ALLOCATION

FY1985-FY1997



SECTION 4.0

DETAILED RESULTS

This section of the report provides detailed information on the allocations to all users groups for the period 1986 through 1997. The allocations of both direct and indirect costs for all major cost categories are included for each user group.

For each year, there are three tables. The first shows the full cost allocation assuming that regulatory costs are allocated to users. The second shows the full cost allocation assuming that regulatory costs are allocated to the public sector. The third table presents the results of the minimum general aviation allocation for each year.

The tables in this section provide a more detailed picture of the year-by-year changes which result in the broad trends depicted in Figures 1.1 - 1.3. The percentage of the FAA budget devoted to air carriers rises slightly, as does the share of general aviation. However, FAA expenditures allocated to the public sector fall. These trends can be identified under either of the alternative assumptions as to the allocation of regulatory costs.

1986

Table 4.1

**1986 ALLOCATION
REGULATORY COSTS ALLOCATED TO USERS**

REGULATORY COSTS ALLOCATED TO USERS										GOVERNMENT	MILITARY	PUBLIC INTEREST
	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMPUTER	AIR TARIFF	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	\$25,391,880	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$19,705,226
Navайд Maintenance	\$445,464,685	\$122,783,215	\$6,858,477	\$8,872,393	\$45,487,697	\$12,278,279	\$39,184,624	\$37,133,147	\$5,689,558	\$2,613,582	\$65,466,783	\$0
Safety Regulation	\$130,797,986	\$46,317,833	\$2,416,164	\$3,493,086	\$12,459,266	\$8,887,311	\$17,686,719	\$15,115,898	\$2,278,185	\$1,819,176	\$7,615,242	\$0
ARTCCs	\$589,981,343	\$239,846,779	\$11,839,826	\$16,359,614	\$19,864,493	\$15,265,538	\$16,677,861	\$11,182,339	\$0	\$1,246,889	\$126,895,588	\$0
Towers	\$119,687,886	\$0,781,428	\$6,311,618	\$9,764,682	\$11,888,856	\$9,982,772	\$14,584,858	\$14,978,789	\$8,928,634	\$2,541,581	\$16,665,775	\$0
TRACONS	\$655,889,283	\$212,969,748	\$3,257,275	\$16,388,511	\$113,323,925	\$11,903,813	\$30,199,326	\$14,657,393	\$8,289,983	\$2,165,484	\$85,792,653	\$0
FSSs	\$249,664,416	\$10,446,810	\$462,329	\$812,548	\$14,383,943	\$14,784,288	\$138,791,773	\$20,591,352	\$18,627,437	\$1,157,175	\$66,578,769	\$0
TOTAL OPS BUDGET	\$2,824,385,769	\$31,915,710	\$46,852,728	\$255,648,181	\$17,101,199	\$367,843,773	\$192,838,838	\$15,733,717	\$14,955,446	\$133,268,962	\$19,705,226	
F&E	\$1,289,665,572	\$673,466,928	\$14,582,658	\$18,616,733	\$229,557,475	\$28,981,324	\$52,683,894	\$48,891,187	\$5,726,947	\$1,461,140	\$127,289,101	\$0
R&D	\$198,888,888	\$118,858,858	\$5,578,827	\$7,938,138	\$39,863,847	\$1,861,958	\$15,732,271	\$17,852,287	\$439,473	\$9,387,123	\$0	
AIP GRANTS	\$485,886,888	\$456,964,286	\$34,077,763	\$623,881	\$68,781,935	\$5,874,348	\$157,146,549	\$123,285,589	\$6,486,121	\$1,788,743	\$8,433,714	\$0
TOTAL DIRECT COSTS	\$4,389,861,341	\$1,889,624,844	\$126,894,158	\$124,128,472	\$623,842,599	\$181,820,622	\$759,982,687	\$113,867,821	\$48,586,258	\$24,637,382	\$479,374,368	\$19,705,228
INDIRECT COSTS												
Public Interest	\$7,586,292	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,692,189
Navайд Maintenance	\$161,461,919	\$56,627,196	\$2,838,676	\$4,894,681	\$12,982,957	\$5,699,099	\$15,760,311	\$17,235,766	\$2,646,871	\$1,213,466	\$38,358,188	\$0
Safety Regulation	\$49,763,723	\$18,869,983	\$303,517	\$1,366,124	\$18,439,733	\$2,712,257	\$6,476,682	\$5,158,437	\$776,832	\$357,183	\$3,911,557	\$0
ARTCCs	\$183,915,788	\$77,899,427	\$4,295,717	\$5,279,669	\$15,824,782	\$4,923,573	\$5,459,315	\$23,488,914	\$0	\$1,844,995	\$48,668,468	\$0
Towers	\$35,797,578	\$2,865,192	\$206,884	\$314,749	\$3,589,347	\$3,257,168	\$11,488,884	\$4,885,279	\$2,13,225	\$813,566	\$5,44,216	\$0
TRACONS	\$159,979,975	\$659,536,245	\$3,025,436	\$5,146,362	\$37,801,129	\$3,886,424	\$14,324,863	\$1,185,751	\$2,888,622	\$778,722	\$28,12,921	\$0
FSSs	\$71,499,019	\$11,606,313	\$281,815	\$158,285	\$6,385,432	\$6,517,536	\$26,588,838	\$9,124,348	\$4,685,868	\$1,391,827	\$11,217,137	\$0
TOTAL OPS BUDGET	\$679,924,276	\$228,884,276	\$11,375,645	\$16,782,893	\$94,213,781	\$26,396,119	\$84,386,872	\$74,598,479	\$13,655,818	\$5,619,319	\$128,327,763	\$6,692,189
F&E	\$12,673,099	\$4,461,438	\$223,168	\$1,318,482	\$1,443,273	\$1,652,254	\$1,346,587	\$1,205,445	\$191,353	\$2,361,327	\$0	
R&D	\$8,577,496	\$2,980,245	\$1,46,976	\$215,588	\$1,184,843	\$299,939	\$1,128,272	\$987,195	\$1,38,987	\$63,844	\$1,597,785	\$0
AIP GRANTS	\$20,726,141	\$6,367,418	\$665,367	\$136,182	\$3,181,397	\$222,231	\$5,424,841	\$4,359,816	\$147,864	\$105,519	\$388,354	\$0
TOTAL INDIRECT COSTS	\$721,895,814	\$242,576,361	\$12,218,156	\$17,272,176	\$108,134,760	\$27,961,583	\$92,584,239	\$77,197,988	\$14,187,266	\$5,863,325	\$125,275,289	\$6,692,189
GRAND TOTAL	\$5,118,566,356	\$2,132,286,405	\$116,384,386	\$121,401,658	\$723,377,359	\$126,962,375	\$672,486,926	\$192,285,888	\$62,773,564	\$29,526,397	\$684,646,189	\$26,397,417
USER GROUP PERCENTS	180,883	41,723	2,31%	2,36%	14,17%	2,52%	13,16%	9,59%	1,23%	0,58%	11,03%	0,52%

Table 4.2

1986 ALLOCATION REGULATORY COSTS ALLOCATED TO PUBLIC										
	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	AIR CARRIER COMPUTER	AIR TARIFF BENEFIT	AVIATION PISTON	AVIATION TURBINE	ROTOR	GOVERNMENT
DIRECT COSTS										
Public Interest	\$25,391,880	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4
Navaid Maintenance	\$35,461,654	\$122,694,128	\$6,896,477	\$8,872,241	\$45,486,915	\$12,278,279	\$39,184,624	\$37,133,147	\$5,689,558	\$2,613,582
Safety Regulation	\$22,365,000	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4
ARTC's	\$59,961,343	\$239,866,779	\$13,839,826	\$16,369,614	\$45,064,498	\$15,265,538	\$36,677,861	\$91,182,339	\$8	\$1,240,849
Towers	\$119,867,886	\$4,781,428	\$51,618	\$964,662	\$11,008,856	\$9,982,772	\$44,584,058	\$14,972,789	\$8,928,634	\$2,554,581
TRICOM's	\$555,869,243	\$212,963,746	\$9,257,275	\$116,386,511	\$113,323,935	\$11,903,013	\$98,199,538	\$14,657,393	\$8,289,983	\$2,385,084
FSS's	\$246,664,416	\$18,443,818	\$452,329	\$812,548	\$14,383,943	\$14,784,288	\$138,791,773	\$26,697,352	\$11,627,437	\$3,157,175
TOTAL OPS BUDGET	\$2,187,959,823	\$593,944,876	\$29,499,526	\$43,398,568	\$233,180,148	\$64,213,688	\$349,357,854	\$176,642,948	\$33,455,612	\$13,950,278
FIE	\$1,289,655,572	\$679,496,928	\$34,582,658	\$48,516,733	\$228,557,476	\$28,983,324	\$58,868,894	\$86,891,187	\$5,726,947	\$4,461,148
AD	\$196,868,886	\$105,253,591	\$5,295,082	\$7,582,285	\$37,772,878	\$1,294,389	\$3,653,384	\$5,335,547	\$376,433	\$275,296
AIP GRANTS	\$485,860,860	\$456,961,286	\$34,817,763	\$623,281	\$86,781,825	\$5,074,348	\$157,146,549	\$21,285,589	\$6,486,121	\$3,788,743
TOTAL DIRECT COSTS	\$4,532,625,395	\$1,825,664,674	\$103,356,021	\$108,228,467	\$589,291,586	\$91,585,861	\$368,217,881	\$396,155,183	\$46,845,114	\$22,467,359
INDIRECT COSTS										
Public Interest	\$5,582,153	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Navaid Maintenance	\$126,642,883	\$442,219,354	\$2,110,088	\$3,082,210	\$15,648,317	\$4,248,154	\$15,023,336	\$12,647,573	\$11,968,527	\$984,244
Safety Regulation	\$43,884,444	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4
ARTC's	\$151,782,535	\$63,533,749	\$3,466,847	\$1,351,128	\$13,841,579	\$4,657,651	\$4,631,675	\$2,236,691	\$4,225,384	\$2,225,156
Towers	\$23,822,823	\$2,257,293	\$162,368	\$247,978	\$2,827,886	\$2,566,184	\$9,941,377	\$3,648,784	\$2,295,134	\$4,289,133
TRICOM's	\$136,142,435	\$56,315,141	\$2,458,578	\$1,331,341	\$29,365,342	\$3,147,544	\$12,568,118	\$3,875,893	\$2,179,987	\$530,673
FSS's	\$35,862,766	\$3,531,722	\$156,258	\$271,641	\$1,324,766	\$1,997,123	\$21,429,578	\$6,995,753	\$3,592,896	\$1,467,132
TOTAL OPS BUDGET	\$544,989,846	\$167,455,268	\$8,345,232	\$12,257,481	\$68,319,862	\$19,016,577	\$63,592,864	\$51,841,793	\$10,826,746	\$4,119,922
FIE	\$9,421,518	\$3,274,722	\$163,697	\$236,794	\$1,214,812	\$329,576	\$1,239,447	\$396,735	\$152,728	\$1,755,662
AD	\$6,376,768	\$2,215,982	\$116,772	\$168,237	\$621,514	\$223,822	\$633,658	\$674,484	\$103,345	\$1,184,444
AIP GRANTS	\$19,765,578	\$6,867,534	\$442,224	\$13,615	\$1,029,689	\$210,933	\$5,164,869	\$1,158,878	\$139,632	\$180,313
TOTAL INDIRECT COSTS	\$568,418,696	\$179,413,587	\$9,861,945	\$12,688,327	\$71,384,217	\$19,768,187	\$70,821,298	\$57,626,883	\$10,422,444	\$4,337,658
GRAND TOTAL	\$15,113,844,898	\$2,815,876,181	\$112,516,794	\$658,675,865	\$111,345,968	\$631,038,378	\$453,782,866	\$56,457,557	\$26,805,217	\$56,352,745
USER GROUP PERCENTS	100.00%	39.41%	2.28%	2.21%	12.92%	2.18%	12.34%	8.87%	1.18%	11.06%
										7.18%

Table 4.3

1986 MINIMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD	\$0	\$5,265,851	\$642,837	\$2,278,219	\$2,877,371	\$274,594	\$15,265,851
GRANT ADMINISTRATION	\$0	\$36,828,824	\$3,789,741	\$12,493,551	\$12,232,778	\$1,581,653	\$43,828,824
AVIATION STANDARDS							
TOTAL OVERHEAD	\$0	\$55,265,875	\$4,352,578	\$14,763,910	\$14,318,140	\$1,859,217	\$55,265,875
CAPITAL PROJECTS BENEFITTING GA							
CS GRANTS	\$0	\$6,115,114	\$0	\$688,971	\$3,465,143	\$0	\$6,115,114
GA GRANTS	\$0	\$79,932,989	\$1,798,880	\$17,587,089	\$30,447,031	\$0	\$79,932,989
FTE GA PROJECTS	\$0	\$21,173,786	\$2,612,841	\$9,446,192	\$7,982,004	\$1,218,749	\$21,173,786
NAF GA PROJECTS	\$0	\$2,877,873	\$252,526	\$943,819	\$763,712	\$117,816	\$2,877,873
TOTAL CAPITAL PROJECTS	\$0	\$169,298,972	\$4,664,246	\$58,768,076	\$44,538,898	\$1,327,765	\$169,298,972
FLIGHT SERVICE STATIONS	\$165,988,379	\$27,438,286	\$15,765,274	\$138,923,011	\$28,328,076	\$18,337,424	\$193,346,585
AIR ROUTE TRAFFIC CONTROL CENTERS	\$121,927,571	\$0	\$12,672,393	\$33,561,910	\$75,693,268	\$0	\$121,927,571
TERMINAL NAVIGATION FACILITIES	\$0	\$8,802,913	\$975,359	\$3,440,349	\$3,161,862	\$416,343	\$9,682,913
TERMINAL CONTROL FACILITIES: TOWERS	\$14,274,848	\$14,186,212	\$2,753,686	\$19,114,338	\$4,139,129	\$2,462,908	\$28,461,852
TRACONS	\$65,949,795	\$11,217,515	\$5,264,824	\$58,578,466	\$6,483,128	\$1,631,367	\$67,864,748
TOTAL MINIMUM GA ALLOCATION	\$368,860,585	\$195,429,693	\$46,452,371	\$319,142,847	\$176,648,432	\$20,837,053	\$563,327,677
FULL GA SHARE OF BUDGET ---DOLLARS							
FULL GA SHARE OF BUDGET ---PERCENTS							
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET							
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC ---DOLLARS							
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC ---PERCENTS							
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC							

1987

Table 4.4

**1987 ALLOCATION
REGULATORY COSTS ALLOCATED TO USERS**

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAIL BEAM AVIATION	SEAL AVIATION PISTON	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS											
Public Interest	\$25,632,085	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$23,382,444
Navaid Maintenance	\$139,085,644	\$134,183,634	\$6,786,635	\$9,785,365	\$54,973,545	\$13,865,167	\$43,226,843	\$41,175,279	\$6,354,836	\$2,988,136	\$53,396,964
Safety Regulation	\$142,561,843	\$149,515,293	\$2,475,758	\$3,289,552	\$13,785,797	\$9,241,621	\$18,279,713	\$15,615,654	\$2,357,687	\$1,481,666	\$7,126,742
ARTC's	\$611,432,616	\$217,459,438	\$13,498,731	\$16,945,782	\$52,711,586	\$16,549,383	\$38,081,951	\$95,189,834	\$8	\$13,382,188	\$127,674,564
Towers	\$124,645,321	\$9,576,725	\$688,822	\$1,852,829	\$11,931,828	\$18,584,986	\$46,371,814	\$15,755,835	\$9,395,633	\$2,688,195	\$16,579,546
TRACONs	\$684,289,657	\$223,595,791	\$9,729,645	\$17,197,788	\$121,655,087	\$13,554,138	\$18,565,978	\$16,585,534	\$9,345,937	\$2,715,816	\$88,867,679
FSS's	\$246,662,773	\$16,327,755	\$457,090	\$883,263	\$14,278,953	\$14,862,538	\$128,947,161	\$28,886,863	\$10,585,731	\$3,174,378	\$25,771,841
TOTAL OPS BUDGET	\$2,124,495,262	\$674,656,293	\$33,556,658	\$49,284,739	\$265,329,628	\$78,573,644	\$38,573,559	\$285,298,397	\$8,139,864	\$15,919,999	\$244,895,917
FIE	\$1,342,598,566	\$784,777,841	\$35,867,996	\$58,134,727	\$244,278,683	\$22,565,258	\$52,534,914	\$93,162,885	\$6,013,528	\$1,982,599	\$129,352,925
R&D	\$134,388,880	\$65,138,451	\$13,355,125	\$4,741,523	\$23,295,584	\$2,764,744	\$8,288,475	\$16,249,831	\$3,311,864	\$575,599	\$14,158,645
AIP GRANTS	\$1712,086,086	\$367,622,538	\$27,267,193	\$505,855	\$71,632,471	\$4,149,542	\$126,686,116	\$98,926,795	\$5,227,149	\$3,434,756	\$6,931,534
TOTAL DIRECT COSTS	\$4,316,645,828	\$1,813,197,114	\$188,146,354	\$181,966,835	\$624,536,386	\$184,853,484	\$574,805,854	\$487,563,194	\$8,331,156	\$24,213,322	\$491,139,861
INDIRECT COSTS											
Public Interest	\$6,811,988	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$6,125,944
Navaid Maintenance	\$158,189,421	\$55,347,321	\$2,766,382	\$4,863,213	\$21,825,276	\$5,719,825	\$19,655,305	\$16,933,743	\$2,628,876	\$1,199,531	\$28,867,629
Safety Regulation	\$45,716,899	\$16,526,263	\$826,216	\$1,195,141	\$9,773,139	\$2,522,146	\$5,612,465	\$4,729,497	\$717,663	\$229,123	\$3,484,446
ARTC's	\$163,624,291	\$71,697,741	\$3,873,429	\$4,862,518	\$15,125,468	\$4,748,796	\$5,125,568	\$27,314,436	\$8	\$197,572	\$26,635,632
Towers	\$133,246,665	\$2,714,099	\$195,216	\$298,151	\$3,361,546	\$2,977,151	\$11,865,543	\$4,465,294	\$2,662,776	\$761,458	\$4,727,079
TRACONs	\$161,179,463	\$64,858,362	\$2,822,357	\$4,988,717	\$25,299,582	\$3,329,581	\$15,393,482	\$4,848,126	\$2,711,879	\$787,570	\$25,546,594
FSS's	\$63,469,181	\$4,816,538	\$177,765	\$312,794	\$5,530,866	\$5,784,137	\$24,142,334	\$8,892,398	\$4,155,756	\$1,234,536	\$10,867,279
TOTAL OPS BUDGET	\$438,259,119	\$214,472,316	\$16,661,287	\$15,668,135	\$38,145,817	\$25,677,835	\$61,824,657	\$55,425,466	\$12,568,144	\$5,263,181	\$169,351,122
FIE	\$11,738,216	\$4,078,916	\$283,467	\$291,445	\$1,546,453	\$429,646	\$1,548,819	\$1,249,189	\$192,771	\$88,228	\$2,123,289
R&D	\$5,397,919	\$1,871,285	\$93,528	\$135,348	\$710,861	\$193,359	\$711,134	\$571,218	\$88,611	\$10,536	\$975,617
AIP GRANTS	\$18,940,382	\$5,825,847	\$124,745	\$32,867	\$2,923,744	\$205,722	\$4,975,115	\$3,982,689	\$134,424	\$96,188	\$237,918
TOTAL INDIRECT COSTS	\$671,375,635	\$226,248,358	\$11,383,827	\$16,121,995	\$95,326,875	\$26,497,563	\$88,262,725	\$72,231,582	\$13,283,951	\$15,588,153	\$11,133,346
GRAND TOTAL	\$4,993,861,463	\$2,813,437,472	\$111,529,996	\$121,986,038	\$719,862,381	\$134,531,842	\$682,267,783	\$479,794,618	\$63,615,117	\$29,751,565	\$684,729,347
USER GROUP PERCENTS	100.00%	48.05%	2.23%	2.43%	14.42%	2.63%	13.26%	9.61%	1.27%	0.60%	12.11%
											0.53%

Table 4.5

**1987 ALLOCATION
REGULATORY COSTS ALLOCATED TO PUBLIC**

		REGULATORY COSTS ALLOCATED TO PUBLIC												
DIRECT COSTS		TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMPUTER	AIR TRAI	GEN AVIATION	GEN AVIATION PISTON	TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
Public Interest	\$26,832,965	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$26,343,444
Navaid Maintenance	\$379,845,544	\$134,163,636	\$6,766,645	\$9,785,365	\$58,973,545	\$13,865,167	\$43,226,643	\$41,175,279	\$6,354,036	\$2,988,136	\$59,986,980	\$44	\$277,644,292	
Safety Regulation	\$277,848,292	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$277,848,292
AIRCAs	\$611,492,616	\$247,459,438	\$13,498,731	\$16,945,782	\$52,711,586	\$16,549,383	\$38,081,051	\$35,189,834	\$8	\$3,382,400	\$121,674,564	\$44	\$277,644,292	
Towers	\$121,645,324	\$9,576,725	\$688,622	\$1,852,629	\$11,931,629	\$10,584,966	\$46,371,814	\$15,725,435	\$9,395,633	\$2,688,195	\$16,679,546	\$44	\$277,644,292	
TRACONS	\$644,289,857	\$223,595,391	\$9,729,645	\$17,191,769	\$42,655,807	\$11,554,438	\$16,566,978	\$16,545,534	\$9,345,997	\$2,715,816	\$48,667,679	\$44	\$277,644,292	
FSSs	\$244,668,773	\$16,327,755	\$457,890	\$883,263	\$14,219,953	\$14,862,538	\$138,947,161	\$28,988,463	\$18,645,731	\$3,174,378	\$25,731,441	\$44	\$277,644,292	
TOTAL OPS BUDGET	\$2,262,581,711	\$625,142,999	\$31,868,892	\$45,784,138	\$251,542,831	\$49,322,824	\$358,293,846	\$189,614,544	\$35,711,397	\$14,668,133	\$331,659,175	\$297,351,722	\$277,644,292	
FIE	\$1,341,638,566	\$784,777,841	\$35,867,196	\$56,134,727	\$244,278,683	\$21,565,534	\$32,534,914	\$32,162,845	\$6,033,928	\$4,682,595	\$129,352,925	\$44	\$277,644,292	
R&D	\$124,580,000	\$42,145,656	\$3,156,162	\$4,452,728	\$21,776,826	\$2,321,169	\$6,820,867	\$9,424,612	\$7,227,012	\$1,089,424	\$12,076,859	\$111,462,265	\$277,644,292	
AIP GRANTS	\$712,860,000	\$367,122,536	\$27,367,193	\$58,655	\$71,532,471	\$4,119,542	\$26,646,116	\$98,928,795	\$5,227,119	\$3,434,796	\$6,931,554	\$44	\$277,644,292	
TOTAL DIRECT COSTS	\$4,452,772,278	\$1,759,689,426	\$97,471,643	\$101,897,444	\$389,232,731	\$98,399,284	\$354,256,963	\$394,722,435	\$47,784,487	\$23,674,951	\$422,229,713	\$386,813,977	\$277,644,292	
INDIRECT COSTS														
Public Interest	\$5,867,222	\$9	\$9	\$9	\$9	\$9	\$9	\$9	\$9	\$9	\$9	\$9	\$9	\$587,361
Navaid Maintenance	\$114,105,214	\$41,227,235	\$2,869,569	\$2,981,922	\$115,661,355	\$4,268,808	\$14,914,357	\$12,658,889	\$1,952,244	\$893,589	\$21,542,133	\$44	\$277,644,292	
Safety Regulation	\$44,415,949	\$9	\$9	\$9	\$9	\$9	\$9	\$9	\$9	\$9	\$9	\$9	\$9	\$44,415,949
AIRCAs	\$144,125,117	\$58,587,159	\$3,195,887	\$4,011,973	\$12,473,691	\$2,918,142	\$4,367,294	\$42,536,634	\$8	\$804,881	\$38,227,544	\$44	\$277,644,292	
Towers	\$27,805,843	\$9,142,117	\$154,975	\$235,317	\$2,663,963	\$2,349,732	\$9,517,666	\$11,521,257	\$2,101,618	\$641,294	\$13,738,872	\$44	\$277,644,292	
TRACONS	\$131,005,789	\$32,538,774	\$2,286,199	\$4,041,086	\$28,585,585	\$3,183,885	\$12,922,266	\$13,928,642	\$2,196,852	\$637,954	\$28,693,485	\$44	\$277,644,292	
FSSs	\$49,614,139	\$3,085,477	\$136,567	\$239,995	\$4,263,487	\$4,440,557	\$19,401,512	\$6,216,933	\$3,192,631	\$946,425	\$7,688,425	\$44	\$277,644,292	
TOTAL OPS BUDGET	\$311,359,271	\$157,584,962	\$7,633,297	\$11,510,213	\$63,657,349	\$16,152,316	\$61,123,836	\$48,849,358	\$9,442,538	\$3,881,984	\$44,354,426	\$277,644,292	\$277,644,292	
FIE	\$8,731,674	\$3,827,636	\$151,324	\$218,986	\$1,150,135	\$312,845	\$1,133,569	\$929,853	\$143,368	\$65,617	\$1,579,142	\$44	\$277,644,292	
R&D	\$4,815,335	\$1,381,664	\$69,566	\$100,672	\$221,748	\$143,821	\$531,538	\$421,104	\$65,989	\$38,166	\$725,563	\$44	\$277,644,292	
AIP GRANTS	\$14,894,699	\$5,568,221	\$485,511	\$38,237	\$2,794,664	\$196,207	\$4,757,357	\$3,884,294	\$128,243	\$191,863	\$321,992	\$44	\$277,644,292	
TOTAL INDIRECT COSTS	\$542,201,182	\$167,568,783	\$8,459,699	\$11,868,198	\$68,133,876	\$18,865,189	\$67,565,581	\$54,913,882	\$9,786,859	\$4,469,638	\$46,977,522	\$44,975,810	\$277,644,292	
STAFF TOTAL	\$4,594,973,459	\$1,927,219,409	\$105,321,341	\$112,937,556	\$657,365,069	\$117,294,474	\$621,822,455	\$444,735,337	\$57,564,545	\$27,144,581	\$569,281,325	\$353,789,867	\$277,644,292	
USER GROUP PERCENTS	100.00%	36.58%	2.12%	2.26%	13.16%	2.35%	12.15%	6.98%	1.15%	6.54%	11.49%	7.88%		

Table 4.6

MINSYS
1987 MINIMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD	\$0	\$4,917,630	\$688,658	\$2,123,775	\$1,927,715	\$257,283	\$4,917,630
GRANT ADMINISTRATION	\$0	\$38,922,969	\$3,875,695	\$12,886,868	\$12,522,736	\$1,637,737	\$38,922,969
AVIATION STANDARDS							
TOTAL OVERHEAD	\$0	\$35,849,599	\$4,484,553	\$15,016,574	\$14,456,451	\$1,695,629	\$35,849,599
CAPITAL PROJECTS							
BENEFITTING GA:							
CS GRANTS	\$0	\$4,919,738	\$0	\$254,281	\$4,365,439	\$0	\$4,919,738
GA GRANTS	\$0	\$65,307,679	\$1,447,234	\$38,365,286	\$24,455,238	\$4	\$65,307,679
FIE GA PROJECTS	\$0	\$22,861,641	\$2,758,531	\$9,846,959	\$8,191,994	\$1,264,161	\$22,861,641
R&D GA PROJECTS	\$0	\$2,816,112	\$347,845	\$1,279,233	\$1,038,735	\$1,159,960	\$2,816,112
TOTAL CAPITAL PROJECTS	\$0	\$94,185,162	\$4,552,858	\$50,805,688	\$38,083,462	\$1,423,221	\$94,185,162
FLIGHT SERVICE STATIONS	\$165,497,356	\$20,422,535	\$15,986,413	\$139,828,533	\$28,681,398	\$18,373,557	\$193,919,901
AIR ROUTE TRAFFIC CONTROL CENTERS	\$126,530,428	\$0	\$13,682,195	\$34,656,229	\$18,238,864	\$4	\$126,530,428
TERMINAL NAVIGATION FACILITIES	\$0	\$0	\$1,180,120	\$3,889,260	\$3,483,186	\$464,873	\$8,857,559
TERMINAL CONTROL FACILITIES:							
TOERS	\$15,725,267	\$16,394,161	\$3,179,176	\$21,328,482	\$4,768,382	\$2,443,468	\$32,119,428
TRACONS	\$75,958,198	\$1,558,353	\$6,853,974	\$50,246,468	\$7,467,196	\$4,182,565	\$77,175,235
TOTAL MINIMUM GA ALLOCATION	\$383,713,259	\$185,178,169	\$48,889,262	\$175,891,853	\$21,182,784	\$368,348,111	
FULL GA SHARE OF BUDGET —DOLLARS							
—PERCENTS							
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET							
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC —DOLLARS							
—PERCENTS							
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC							

1988

Table 4.7

**1988 ALLOCATION
REGULATORY COSTS ALLOCATED TO USERS**

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TRAI	GENL AVIATION	GENL AVIATION PISTON	MOTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	\$27,662,972	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$22,456,463
Merval Maintenance	\$346,488,254	\$122,689,818	\$6,899,634	\$8,831,916	\$47,537,739	\$12,963,576	\$48,629,868	\$37,781,388	\$5,876,136	\$2,678,732	\$61,941,817	\$4
Safety Regulation	\$117,250,598	\$58,727,389	\$2,535,837	\$13,651,398	\$35,172,521	\$9,613,965	\$18,897,647	\$16,842,734	\$2,448,869	\$1,115,644	\$7,434,784	\$4
ANTCs	\$621,314,945	\$255,421,827	\$13,955,559	\$17,518,184	\$56,555,745	\$17,932,876	\$39,514,676	\$39,322,923	\$4	\$1,529,270	\$129,151,475	\$4
Towers	\$134,478,512	\$16,443,546	\$751,178	\$1,117,251	\$12,938,959	\$11,441,429	\$48,261,361	\$16,564,546	\$9,875,581	\$2,425,491	\$16,625,264	\$4
TRACONs	\$645,797,395	\$234,478,184	\$18,283,285	\$18,331,827	\$18,346,664	\$15,379,939	\$114,328,168	\$18,938,867	\$10,668,158	\$3,881,674	\$9,297,636	\$4
FSSs	\$234,858,294	\$18,183,317	\$458,813	\$792,163	\$14,283,469	\$14,984,925	\$138,693,136	\$28,868,574	\$10,718,258	\$3,181,926	\$21,451,414	\$4
TOTAL OPS BUDGET	\$2,169,955,471	\$683,735,482	\$13,936,416	\$19,391,731	\$296,855,898	\$81,435,963	\$484,324,267	\$289,514,958	\$13,518,922	\$16,414,738	\$335,786,153	\$22,856,463
FIE	\$1,414,640,000	\$738,414,563	\$17,575,193	\$52,653,552	\$282,693,684	\$24,535,259	\$55,555,536	\$98,677,432	\$6,428,418	\$4,982,162	\$132,797,222	\$4
AD	\$214,000,000	\$1,025,237,246	\$5,266,439	\$7,598,681	\$39,964,535	\$4,365,781	\$15,281,849	\$14,477,274	\$1,865,444	\$943,484	\$18,826,431	\$4
AIR GRANTS	\$484,000,000	\$413,838,426	\$18,748,533	\$567,865	\$88,717,465	\$4,746,428	\$142,476,295	\$116,832,382	\$5,884,985	\$1,482,882	\$7,591,466	\$4
TOTAL DIRECT COSTS	\$4,598,555,871	\$1,946,425,629	\$111,086,829	\$188,238,782	\$115,697,282	\$113,560,967	\$431,581,961	\$53,717,789	\$25,728,385	\$494,923,271	\$22,856,463	
INDIRECT COSTS												
Public Interest	\$9,225,417	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8,482,445
Merval Maintenance	\$184,512,328	\$63,851,994	\$3,151,231	\$4,562,658	\$21,558,439	\$5,697,181	\$22,543,911	\$19,518,172	\$3,835,667	\$1,381,658	\$11,999,387	\$4
Safety Regulation	\$55,461,806	\$21,386,986	\$1,861,882	\$1,547,147	\$12,841,759	\$3,214,262	\$7,342,436	\$6,149,145	\$948,475	\$429,591	\$4,424,672	\$4
ANTCs	\$4219,326,415	\$91,788,135	\$5,882,611	\$6,256,654	\$28,273,385	\$6,426,863	\$6,468,439	\$35,684,820	\$8	\$1,265,128	\$46,226,586	\$4
Towers	\$43,256,746	\$3,797,594	\$273,148	\$417,176	\$4,795,883	\$4,015,883	\$13,362,974	\$6,821,921	\$3,591,835	\$1,427,435	\$6,845,457	\$4
TRACONs	\$214,118,482	\$445,263,889	\$3,710,182	\$6,537,988	\$47,431,282	\$5,592,551	\$29,652,730	\$6,666,730	\$3,857,135	\$1,128,586	\$12,631,867	\$4
FSSs	\$78,768,295	\$5,835,563	\$222,967	\$391,796	\$7,821,889	\$7,371,822	\$29,223,657	\$18,321,381	\$5,381,144	\$1,574,737	\$12,291,233	\$4
TOTAL OPS BUDGET	\$484,682,597	\$276,254,768	\$13,429,142	\$19,756,811	\$116,843,277	\$13,418,844	\$91,794,147	\$45,581,369	\$16,725,752	\$6,881,336	\$124,784,619	\$8,482,445
FIE	\$15,476,952	\$5,351,652	\$267,574	\$337,419	\$2,865,286	\$568,657	\$2,653,786	\$1,557,386	\$257,761	\$117,585	\$2,717,891	\$4
AD	\$10,756,395	\$3,728,354	\$185,987	\$259,174	\$1,418,836	\$395,897	\$1,437,828	\$1,151,478	\$179,898	\$1,887,845	\$1,887,845	\$4
AIR GRANTS	\$25,145,345	\$7,775,838	\$565,634	\$66,386	\$1,672,929	\$284,611	\$6,561,878	\$1,230,846	\$188,558	\$121,578	\$445,541	\$4
TOTAL INDIRECT COSTS	\$456,061,289	\$287,104,412	\$114,448,257	\$28,459,798	\$121,259,387	\$34,663,208	\$109,855,953	\$32,546,281	\$17,343,161	\$7,128,851	\$139,775,816	\$4,432,932
GRAND TOTAL	\$15,454,556,368	\$1,227,530,852	\$112,654,839	\$131,465,828	\$88,181,889	\$158,388,491	\$723,516,919	\$526,842,163	\$11,858,958	\$32,856,437	\$634,698,287	\$38,449,355
USER GROUP PERCENTS	100.00%	10.84%	2.24%	2.41%	14.75%	2.76%	13.26%	9.64%	1.38%	6.58%	11.64%	0.56%

Table 4.8

1988 ALLOCATION
REGULATORY COSTS ALLOCATED TO PUBLIC

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMPUTER	AIR TAIL SEAT AVIATION	GEN. AVIATION	PISTON	TURBINE	MILITARY	GOVERNMENT	ROTOR	PUBLIC INTEREST
<u>DIRECT COSTS</u>													
Public Interest	\$27,852,972	\$4	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6
Naval Maintenance	\$346,406,254	\$122,469,610	\$6,079,834	\$4,821,916	\$17,537,729	\$12,963,570	\$46,629,468	\$37,781,388	\$15,676,135	\$2,678,722	\$61,941,417	\$4	\$2,466,510
Safety Regulation	\$317,519,365	\$4	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$4
ARTCCs	\$633,314,945	\$255,434,037	\$11,935,559	\$17,519,184	\$56,535,745	\$17,932,076	\$39,514,576	\$98,322,923	\$4	\$1,529,278	\$129,151,475	\$4	\$117,519,365
Towers	\$134,478,512	\$10,443,546	\$751,178	\$1,147,251	\$12,930,959	\$11,441,429	\$46,261,361	\$16,564,548	\$9,675,541	\$2,425,491	\$16,625,264	\$4	
TRACONS	\$445,731,795	\$234,478,184	\$16,283,265	\$16,431,827	\$13,446,664	\$15,379,939	\$11,428,154	\$16,938,687	\$16,686,158	\$1,461,674	\$98,297,694	\$4	
FSSs	\$238,458,294	\$10,183,317	\$458,413	\$792,163	\$11,203,463	\$11,934,925	\$13,693,136	\$20,864,574	\$16,716,258	\$1,183,936	\$21,451,414	\$4	
TOTAL OPS BUDGET	\$2,346,223,737	\$633,406,833	\$31,468,586	\$16,325,341	\$261,682,576	\$12,221,918	\$381,426,646	\$193,412,224	\$17,878,654	\$15,299,794	\$122,671,369	\$129,575,467	
FIE	\$1,414,640,868	\$736,414,563	\$37,575,193	\$32,851,552	\$262,683,664	\$21,535,259	\$35,656,536	\$98,577,432	\$6,428,418	\$4,358,162	\$13,737,722	\$4	
R&D	\$21,866,086	\$98,472,278	\$4,968,379	\$7,138,154	\$37,485,881	\$3,989,748	\$12,988,568	\$12,587,281	\$1,588,684	\$4,843,726	\$13,596,673	\$14,237,358	
AIR GRANTS	\$684,406,060	\$413,438,428	\$38,743,513	\$56,865	\$86,717,485	\$4,748,428	\$142,478,295	\$116,432,382	\$15,844,885	\$3,482,662	\$7,591,466	\$4	
TOTAL DIRECT COSTS	\$4,768,623,737	\$1,683,333,354	\$184,752,685	\$186,876,122	\$642,579,447	\$185,407,356	\$532,478,439	\$415,489,218	\$58,978,521	\$24,473,666	\$484,658,722	\$357,412,186	
<u>INDIRECT COSTS</u>													
Public Interest	\$6,466,164	\$4	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6
Naval Maintenance	\$134,999,236	\$17,841,425	\$2,354,676	\$3,463,533	\$16,319,498	\$4,995,730	\$17,161,459	\$14,259,684	\$2,264,472	\$1,432,296	\$21,678,453	\$4	
Safety Regulation	\$52,382,575	\$4	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6
ARTCCs	\$184,673,435	\$75,472,643	\$4,116,977	\$5,168,269	\$16,684,299	\$5,298,875	\$5,499,437	\$29,388,884	\$4	\$1,441,157	\$30,140,494	\$4	
Towers	\$35,856,586	\$2,977,717	\$214,179	\$321,113	\$1,689,258	\$1,148,228	\$11,618,384	\$1,221,872	\$2,815,781	\$4,025,526	\$4,746,327	\$4	
TRACONS	\$172,531,115	\$68,601,224	\$2,991,852	\$5,291,028	\$38,216,814	\$1,512,623	\$17,585,974	\$15,557,104	\$1,112,674	\$984,213	\$26,495,393	\$4	
FSSs	\$61,468,545	\$3,448,372	\$178,366	\$299,366	\$5,367,625	\$5,632,712	\$23,618,328	\$17,886,432	\$4,850,531	\$1,283,236	\$19,751,584	\$4	
TOTAL OPS BUDGET	\$644,979,977	\$196,141,418	\$9,846,853	\$114,498,189	\$12,336,694	\$23,579,584	\$75,483,574	\$62,425,972	\$12,213,457	\$4,966,549	\$181,194,466	\$58,652,123	
FIE	\$11,586,495	\$3,979,581	\$198,841	\$287,959	\$1,549,937	\$4,222,669	\$1,536,762	\$1,231,835	\$1,911,588	\$67,238	\$2,119,547	\$4	
R&D	\$17,996,956	\$2,765,455	\$138,191	\$288,886	\$1,476,964	\$293,688	\$1,659,587	\$435,938	\$1,231,123	\$68,566	\$1,443,264	\$4	
AIR GRANTS	\$23,771,278	\$7,350,824	\$335,821	\$13,113	\$13,678,347	\$285,864	\$6,221,195	\$4,759,115	\$176,596	\$129,724	\$4,23,346	\$4	
TOTAL INDIRECT COSTS	\$684,254,701	\$212,217,666	\$18,718,149	\$115,021,267	\$88,633,939	\$24,564,928	\$44,311,984	\$49,072,451	\$12,738,759	\$5,253,297	\$107,682,624	\$58,652,123	
GRAND TOTAL	\$5,457,676,438	\$2,075,571,428	\$115,478,833	\$121,837,369	\$731,213,386	\$129,968,294	\$676,731,136	\$684,562,669	\$163,789,253	\$28,728,363	\$551,711,253	\$416,455,349	
USER GROUP PERCENTS	100.00%	38.48%	2.12%	2.23%	13.48%	2.38%	12.48%	8.88%	1.17%	8.54%	18.44%	7.63%	

Table 4.9

1988 MINIMUM GA ALLOCATION

MINSYS

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORGRAFT	TOTAL COST
OPERATIONS OVERHEAD	\$0	\$6,214,746	\$785,179	\$2,697,978	\$2,433,118	\$328,487	\$6,214,746
GRANT ADMINISTRATION	\$0	\$31,832,244	\$4,049,596	\$13,386,185	\$12,688,274	\$1,694,189	\$31,832,244
AVIATION STANDARDS							
TOTAL OVERHEAD	\$0	\$38,856,990	\$4,834,774	\$15,998,156	\$15,241,384	\$2,822,676	\$38,856,990
CAPITAL PROJECTS							
BENEFITING GA:							
CS GRANTS	\$0	\$5,587,787	\$0	\$622,799	\$4,984,988	\$0	\$15,527,787
GA GRANTS	\$0	\$72,255,819	\$1,626,186	\$43,186,973	\$27,522,748	\$0	\$72,255,819
FLE GA PROJECTS	\$0	\$23,226,718	\$2,943,747	\$10,359,307	\$8,579,319	\$1,334,344	\$23,226,718
R&D GA PROJECTS	\$0	\$5,870,674	\$858,626	\$2,111,715	\$2,586,288	\$398,185	\$5,870,674
TOTAL CAPITAL PROJECTS	\$0	\$107,898,997	\$5,438,488	\$57,216,793	\$43,515,275	\$1,174,449	\$107,898,997
FLIGHT SERVICE STATIONS	\$164,536,477	\$29,441,265	\$16,015,787	\$138,753,918	\$28,821,055	\$10,383,949	\$193,977,742
AIR ROUTE TRAFFIC CONTROL CENTERS	\$131,239,931	\$0	\$14,598,762	\$35,823,257	\$86,815,912	\$0	\$131,239,931
TERMINAL NAVIGATION FACILITIES	\$0	\$9,883,032	\$1,235,964	\$4,219,989	\$3,838,882	\$1517,878	\$9,883,032
TERMINAL CONTROL FACILITIES:							
TOWERS	\$17,383,867	\$18,933,704	\$3,676,512	\$23,758,538	\$5,514,234	\$3,288,288	\$36,237,571
TRACONS	\$87,357,887	\$1,987,284	\$6,973,799	\$66,985,631	\$8,587,558	\$4,810,187	\$88,754,425
TOTAL MINIMUM GA ALLOCATION	\$400,437,353	\$286,113,272	\$52,758,877	\$342,768,274	\$186,326,151	\$22,746,548	\$685,938,609
FULL GA SHARE OF BUDGET --DOLLARS							
	\$150,368,491	\$723,516,919					
FULL GA SHARE OF BUDGET --PERCENTS							
	2.76%	13.28%					
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET	0.97%	6.28%					
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC --DOLLARS							
	2.38%	12.49%					
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC	0.89%	6.01%					

1989

Table 4.10
1989 ALLOCATION
REGULATORY COSTS ALLOCATED TO USERS

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMPUTER	AIR TAXI	SEAL AVIATION PISTON	SEAL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	\$24,595,489	14	16	16	14	14	16	16	14	14	14	15,924,899
Mavalid Maintenance	\$116,547,673	\$111,956,861	15,541,963	16,823,721	\$14,332,577	112,127,983	135,141,896	134,668,635	15,138,444	12,168,444	154,794,967	\$22,671,318
Safety Regulation	\$151,662,219	151,951,786	12,396,138	13,759,136	136,618,346	114,085,489	119,542,154	116,476,329	12,526,154	11,154,355	67,439,191	44
ARTCOS	\$655,396,493	\$284,126,469	114,487,966	118,867,846	164,596,477	119,429,494	146,976,529	113,543,282	14,564,632	13,394,517,745	44	
Towers	\$136,463,825	\$111,358,978	1619,172	11,251,116	114,825,882	111,391,568	117,345,558	118,367,541	12,966,269	116,516,922	44	
TRACONS	\$696,818,985	\$245,611,791	116,687,678	116,891,165	\$139,715,635	117,469,921	112,291,464	121,437,598	13,448,235	132,479,166	44	
FSSs	\$236,943,863	\$16,614,815	6443,431	1779,125	114,692,434	111,987,411	113,941,326	126,873,223	116,722,198	13,184,932	123,936,644	44
TOTAL DIRECT COSTS	\$2,215,654,488	\$54,869,861	134,499,463	156,881,494	1309,394,573	115,461,948	115,181,966	121,421,646	111,963,987	116,928,177	133,214,877	\$22,671,318
F&E	\$1,414,560,000	\$734,441,231	137,364,695	152,586,182	\$284,314,216	125,336,962	156,371,637	199,238,652	16,364,229	15,465,246	1125,392,935	44
R&D	\$222,864,800	\$186,591,273	15,453,579	17,425,252	\$42,384,222	14,377,531	115,923,199	115,861,769	11,988,836	1986,366	116,962,628	44
AIP GRANTS	\$480,866,000	\$413,813,072	136,747,143	155,438	166,947,961	11,821,642	142,729,616	116,586,824	15,895,616	13,394,244	17,394,644	44
TOTAL DIRECT COSTS	\$1,652,254,488	\$11,756,174,637	136,866,899	111,788,364	1704,961,874	1124,497,483	1434,117,358	1439,245,892	135,444,663	125,321,139	1446,364,731	\$22,671,318
INDIRECT COSTS												
Public Interest	\$4,818,846	16	18	16	16	16	16	16	16	16	16	4,691,277
Mavalid Maintenance	\$152,828,136	152,848,189	12,610,183	12,825,865	121,167,903	15,774,151	119,471,836	120,565,646	12,569,386	11,173,318	125,469,321	44
Safety Regulation	\$55,829,596	119,633,376	1981,877	11,425,154	112,654,923	13,112,138	16,634,642	15,684,674	1076,792	1394,774	141,951,584	44
ARTCOS	\$236,846,132	145,928,466	14,665,898	15,883,722	119,712,862	16,317,496	16,215,635	13,695,663	14,197,318	142,457,469	44	
Towers	\$11,436,861	\$1,588,576	1265,387	1465,296	11,543,633	13,751,166	113,654,749	15,628,735	11,357,768	1364,683	15,354,822	44
TRACONS	\$217,469,371	181,168,827	13,531,987	16,233,817	146,172,825	15,753,232	121,823,681	17,881,541	11,964,234	11,152,774	139,561,453	44
FSSs	\$71,495,587	\$4,496,578	1199,113	1349,849	16,138,597	16,693,611	127,854,662	19,372,656	14,814,586	11,138,132	110,746,264	44
TOTAL INDIRECT COSTS	\$741,955,716	42,247,015,120	412,387,466	416,132,803	1109,925,212	111,485,336	194,495,344	177,974,912	115,686,631	16,315,664	1114,649,644	44,114,769
F&E	\$14,242,110	\$4,911,832	1245,138	1255,453	11,961,588	1536,684	11,924,612	11,523,918	1244,625	11,071,216	12,421,416	44
R&D	\$10,254,213	\$1,539,666	1176,839	1256,218	91,413,847	1386,784	11,389,341	11,195,646	1173,442	11,747,512	11,747,512	44
AIP GRANTS	\$22,772,206	\$7,632,845	1512,848	146,682	91,538,795	4257,654	15,975,638	14,742,831	1163,697	1115,249	1442,686	44
TOTAL INDIRECT COSTS	\$193,236,248	1283,236,183	113,241,783	116,784,268	1116,441,754	12,546,378	116,784,526	145,356,587	116,184,155	16,618,336	1124,423,646	44,114,769
Grand Total	15,441,492,725	\$2,213,472,741	1121,318,682	1136,572,564	1617,882,426	1153,443,852	1733,941,684	1524,641,599	171,629,116	12,913,275	1611,384,579	134,798,079
USER GROUP PERCENTS	100.00%	48.66%	2.23%	2.40%	15.03%	2.61%	13.49%	9.61%	1.32%	4.61%	11.24%	4.57%

Table 4.11

1989 ALLOCATION REGULATORY COSTS ALLOCATED TO PUBLIC												
	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMPUTER	AIR TAIL SEAL	AVIATION PISTON	AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
<u>DIRECT COSTS</u>												
Public Interest	\$26,575,469	48	48	48	48	48	48	48	48	48	48	48
Naval Maintenance	1316,547,673	6116,395,883	15,544,965	\$16,833,724	\$44,322,577	\$12,127,943	\$38,141,696	\$31,664,635	\$15,438,444	\$2,464,464	\$54,794,967	\$42,671,310
Safety Regulation	1386,786,298	18	18	18	18	18	18	18	18	18	18	18
ARCCOs	\$655,394,493	\$284,126,489	\$14,467,986	\$18,887,848	\$65,596,477	\$19,428,494	\$46,976,329	\$140,563,282	18	\$13,688,652	\$13,517,785	\$4
Towers	\$135,483,825	\$11,388,978	\$819,172	\$1,251,118	\$14,829,482	\$11,591,560	\$54,165,534	\$17,385,654	\$10,367,541	\$2,565,269	\$16,516,922	\$4
TRACOMs	\$638,018,985	\$245,611,791	\$10,687,678	\$10,891,165	\$139,715,835	\$17,469,491	\$128,291,468	\$21,437,596	\$12,847,746	\$3,488,255	\$12,479,166	\$4
FSSs	\$236,943,883	\$10,014,815	\$443,431	\$779,125	\$14,698,454	\$11,987,411	\$137,384,326	\$28,873,223	\$18,722,938	\$3,184,952	\$23,926,844	\$4
TOTAL OPS BUDGET	\$2,372,692,559	\$642,137,275	\$31,983,152	\$47,842,158	\$272,771,625	\$75,156,539	\$395,559,752	\$197,948,387	\$34,535,428	\$15,788,612	\$24,171,786	\$131,377,546
FIE	\$1,414,580,498	\$734,481,231	\$37,168,695	\$52,586,182	\$264,314,316	\$25,136,962	\$56,371,637	\$79,238,652	\$6,584,229	\$5,805,248	\$129,382,965	\$4
R&D	\$222,866,886	\$102,886,496	\$5,124,722	\$7,358,884	\$39,678,904	\$4,158,254	\$13,515,546	\$13,825,569	\$1,654,291	\$137,987	\$15,712,258	\$14,919,129
AIR GRANTS	\$488,866,886	\$413,013,672	\$38,247,143	\$65,438	\$88,947,961	\$6,821,682	\$142,720,616	\$1118,548,824	\$5,895,616	\$1,394,248	\$7,394,844	\$4
TOTAL DIRECT COSTS	\$4,889,292,359	\$1,891,639,985	\$185,443,713	\$187,552,584	\$661,712,483	\$189,772,797	\$684,167,553	\$429,712,652	\$12,393,955	\$25,827,975	\$476,671,841	\$354,296,729
<u>INDIRECT COSTS</u>												
Public Interest	\$6,552,954	48	48	48	48	48	48	48	48	48	48	48
Naval Maintenance	\$112,615,528	\$39,492,423	\$1,962,725	\$2,852,794	\$15,748,398	\$4,386,872	\$114,766,425	\$12,369,196	\$1,328,934	\$876,442	\$19,455,897	\$4
Safety Regulation	\$46,451,447	54	54	54	54	54	54	54	54	54	54	54
ARCCOs	\$169,458,415	\$76,583,424	\$3,858,296	\$1,632,489	\$16,192,496	\$5,189,835	\$15,263,528	\$27,641,852	\$4,487,932	\$73,599	\$24,876,932	\$4
Towers	\$33,177,197	\$2,187,543	\$297,691	\$12,127,244	\$3,556,911	\$2,938,986	\$11,288,196	\$2,688,578	\$732,463	\$4,188,181	\$4,151,447	\$4
TRACOMs	\$167,733,486	\$63,328,666	\$2,842,745	\$5,824,737	\$37,161,884	\$4,638,538	\$18,323,198	\$15,782,844	\$3,193,861	\$21,597,925	\$4	
FSSs	\$55,731,774	\$3,351,199	\$152,114	\$267,278	\$4,436,322	\$5,113,826	\$21,784,769	\$7,164,333	\$3,678,188	\$1,982,563	\$4,211,277	\$4
TOTAL OPS BUDGET	\$594,719,916	\$181,614,659	\$9,821,682	\$11,295,834	\$77,489,811	\$22,179,168	\$71,438,568	\$157,264,558	\$11,431,465	\$1,522,445	\$91,445,547	\$54,449,426
FIE	\$10,593,354	\$2,652,828	\$102,442	\$251,328	\$1,458,645	\$398,839	\$1,133,159	\$1,148,679	\$178,937	\$1,219	\$1,882,882	\$4
R&D	\$7,637,546	\$2,632,542	\$131,512	\$198,539	\$1,651,455	\$281,845	\$1,424,472	\$422,251	\$128,986	\$54,546	\$1,299,597	\$4
AIR GRANTS	\$21,635,841	\$6,572,544	\$486,057	\$37,946	\$1,357,659	\$241,235	\$5,684,433	\$4,516,884	\$155,231	\$1,089,576	\$177,917	\$4
TOTAL INDIRECT COSTS	\$634,586,613	\$19,821,613	\$13,787,987	\$13,356,171	\$23,119,887	\$79,582,563	\$63,724,284	\$11,894,619	\$4,881,886	\$95,325,943	\$54,449,426	
BROAD TOTAL	15,443,879,172	\$2,486,241,157	\$114,965,326	\$121,316,412	\$745,069,655	\$132,822,684	\$687,756,117	\$481,446,937	\$129,398,481	\$571,997,744	\$484,765,555	
USER GROUP PERCENTS	188,301	36.32%	2,111	2,231	13,695	2,435	12,635	6,985	1,181	4,535	14,515	7,445

Table 4.12

1989 MINIMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD	\$6	\$5,755,831	\$734,464	\$2,495,615	\$2,225,257	\$384,194	\$5,759,831
GRANT ADMINISTRATION	\$8	\$32,882,451	\$4,231,587	\$13,735,826	\$13,087,916	\$1,754,332	\$32,889,451
AVIATION STANDARDS							
TOTAL OVERHEAD	\$8	\$38,569,292	\$4,966,051	\$16,231,242	\$15,313,174	\$2,058,826	\$38,569,292
CAPITAL PROJECTS							
BENEFITTING GA:							
CS GRANTS	\$8	\$5,527,787	\$8	\$622,799	\$1,984,988	\$8	\$5,527,787
GA GRANTS	\$8	\$72,255,819	\$1,626,186	\$43,186,973	\$27,382,748	\$8	\$72,255,819
FILE GA PROJECTS	\$8	\$23,228,868	\$2,381,935	\$10,384,912	\$8,524,858	\$1,337,163	\$23,228,868
R&D GA PROJECTS	\$8	\$7,127,819	\$804,933	\$3,238,286	\$2,585,810	\$485,791	\$7,127,819
TOTAL CAPITAL PROJECTS	\$8	\$108,139,493	\$5,512,974	\$57,344,969	\$43,538,596	\$1,742,954	\$108,139,493
FLIGHT SERVICE STATIONS	\$162,966,314	\$30,495,572	\$16,889,253	\$138,826,321	\$28,988,537	\$10,355,774	\$153,461,886
AIR ROUTE TRAFFIC CONTROL CENTERS	\$135,051,839	\$8	\$15,649,501	\$36,988,786	\$33,421,832	\$8	\$135,051,839
TERMINAL NAVIGATION FACILITIES	\$8	\$10,849,669	\$1,388,716	\$4,677,728	\$4,287,491	\$575,734	\$10,849,669
TERMINAL CONTROL FACILITIES:							
TOWERS	\$119,818,268	\$21,853,189	\$4,259,327	\$26,414,188	\$6,388,373	\$1,889,561	\$46,871,448
TRACONS	\$108,325,297	\$2,526,088	\$8,809,063	\$76,928,687	\$9,662,376	\$5,524,171	\$108,325,297
TOTAL MINIMUM GA ALLOCATION	\$418,360,909	\$212,433,214	\$35,865,885	\$356,612,848	\$191,712,379	\$24,977,819	\$629,872,896
FULL GA SHARE OF BUDGET —DOLLARS							
	\$153,883,862	\$723,981,884	\$521,681,599	\$71,629,118	\$1,443,216,463		
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET							
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC —DOLLARS							
	2,81%	13.49%	9.64%	1,32%	27.26%		
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC							
—PERCENTS							
	2.44%	12.63%	8.98%	1,18%	25.16%		
—PERCENTS							
	0.95%	6.38%	3.26%	0.41%	10.97%		

1990

Table 4.13
1990 ALLOCATION
REGULATORY COSTS ALLOCATED TO USERS

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMITTEE	AIR TAXI	GEN. AVIATION PISTON	GEN. AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	\$29,543,531	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$23,417,316
Naval Maintenance	\$269,261,491	\$164,875,933	\$15,827,610	\$17,384,347	\$44,341,207	\$11,353,234	\$35,771,698	\$31,814,162	\$5,437,538	\$2,275,798	\$48,449,271	\$4
Safety Regulation	\$136,218,255	\$53,167,289	\$2,657,137	\$13,850,367	\$10,128,671	\$16,417,891	\$20,215,824	\$16,916,451	\$2,619,771	\$1,186,586	\$7,439,778	\$4
ARTC's	\$677,676,461	\$272,245,927	\$14,853,052	\$18,645,856	\$64,838,477	\$21,821,978	\$42,464,367	\$197,972,466	\$4	\$3,836,615	\$131,761,184	\$4
Towers	\$142,645,773	\$12,128,968	\$893,399	\$1,364,476	\$15,289,746	\$12,154,389	\$42,975,938	\$18,229,689	\$10,878,866	\$13,119,275	\$16,355,184	\$4
TRACONs	\$737,558,496	\$256,969,228	\$11,182,762	\$19,765,258	\$14,476,263	\$19,654,998	\$143,674,286	\$24,281,194	\$13,556,832	\$13,926,265	\$94,588,469	\$4
FSSs	\$234,279,183	\$9,818,314	\$434,577	\$764,828	\$13,922,781	\$14,855,568	\$136,769,465	\$20,815,938	\$10,694,121	\$13,176,528	\$22,967,543	\$4
TOTAL OPS BUDGET	\$2,266,574,968	\$795,578,671	\$35,058,837	\$51,695,331	\$322,939,151	\$89,467,269	\$430,971,582	\$219,951,851	\$42,779,128	\$17,521,164	\$327,291,684	\$23,417,316
FIE	\$1,414,640,088	\$734,295,645	\$37,147,842	\$52,382,941	\$274,874,436	\$26,174,746	\$57,115,289	\$97,192,236	\$6,585,274	\$5,441,125	\$126,437,266	\$4
R&D	\$229,888,048	\$111,376,396	\$5,591,662	\$8,439,379	\$44,539,485	\$5,164,385	\$16,395,515	\$15,621,781	\$2,863,481	\$1,825,685	\$18,979,938	\$4
AIP Grants	\$436,866,868	\$412,982,731	\$38,745,478	\$553,448	\$81,175,947	\$4,984,297	\$142,984,626	\$118,192,611	\$5,988,865	\$3,385,418	\$7,198,334	\$4
TOTAL DIRECT COSTS	\$4,710,274,968	\$11,363,233,443	\$184,543,611	\$112,681,131	\$722,728,939	\$125,711,238	\$647,566,933	\$445,542,398	\$17,341,969	\$25,986,388	\$479,587,215	\$23,417,316
INDIRECT COSTS												
Public Interest	\$40,397,252	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$41,313,731
Naval Maintenance	\$132,398,133	\$45,726,885	\$2,266,636	\$3,315,623	\$118,765,831	\$5,153,513	\$17,333,131	\$14,441,234	\$2,286,663	\$1,433,837	\$21,926,324	\$4
Safety Regulation	\$52,992,213	\$16,859,832	\$942,982	\$1,365,466	\$11,794,425	\$3,440,224	\$6,621,284	\$5,465,963	\$851,826	\$385,251	\$1,669,869	\$4
ARTC's	\$208,705,205	\$63,397,238	\$4,549,258	\$5,716,925	\$119,852,564	\$6,138,784	\$6,149,834	\$32,878,263	\$4	\$1,175,875	\$48,357,114	\$4
Towers	\$40,244,787	\$3,737,818	\$268,819	\$410,689	\$4,577,842	\$3,657,575	\$13,877,738	\$5,485,421	\$3,271,358	\$935,978	\$4,922,813	\$4
TRACONs	\$208,443,413	\$66,895,348	\$3,405,389	\$6,166,586	\$46,586,964	\$6,125,831	\$23,465,636	\$7,543,368	\$4,225,238	\$1,227,431	\$29,446,135	\$4
FSSs	\$66,985,842	\$4,156,677	\$184,199	\$323,458	\$5,987,610	\$6,293,523	\$25,784,178	\$8,812,626	\$4,527,159	\$1,344,813	\$9,731,996	\$4
TOTAL OPS BUDGET	\$710,426,405	\$226,836,956	\$11,716,313	\$17,286,541	\$107,483,135	\$38,789,369	\$92,352,718	\$74,828,284	\$15,161,728	\$6,181,596	\$114,771,634	\$7,943,511
FIE	\$13,561,818	\$4,658,825	\$222,616	\$337,284	\$1,986,966	\$224,244	\$1,456,758	\$1,459,844	\$232,612	\$185,866	\$2,237,183	\$4
R&D	\$10,886,848	\$3,463,484	\$172,962	\$254,788	\$1,418,415	\$389,843	\$1,382,720	\$1,892,318	\$172,959	\$78,137	\$1,653,461	\$4
AIP Grants	\$21,686,503	\$6,651,916	\$485,324	\$37,752	\$1,364,538	\$246,181	\$5,687,563	\$1,491,558	\$155,575	\$189,243	\$351,427	\$4
TOTAL INDIRECT COSTS	\$755,642,918	\$226,828,377	\$12,647,214	\$17,912,365	\$114,176,746	\$31,871,517	\$181,279,744	\$81,873,196	\$15,722,874	\$6,394,865	\$115,841,389	\$7,943,511
GRAND TOTAL	\$15,455,957,818	\$2,211,053,820	\$121,150,224	\$138,513,496	\$835,986,685	\$157,382,753	\$746,946,577	\$227,415,595	\$17,341,969	\$25,986,388	\$594,548,523	\$21,404,427
USER GROUP PERCENTS	100.00%	48.45%	2.22%	2.3%	15.31%	2.88%	13.70%	9.65%	1.34%	0.61%	18.86%	0.57%

Table 4.14

**1990 ALLOCATION
REGULATORY COSTS ALLOCATED TO PNTL, INC.**

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMPUTER	AIR TAIL GENL AVIATION	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	\$29,543,631	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$23,417,316
Navaid Maintenance	\$209,261,891	\$100,675,953	\$5,837,510	\$17,304,347	\$44,341,287	\$11,353,234	\$35,771,598	\$31,614,152	\$5,027,538	\$2,275,790	\$46,449,271	\$6
Safety Regulation	\$386,621,221	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$366,627,221
ANTCs	\$677,676,461	\$272,286,927	\$114,853,452	\$18,645,856	\$64,438,477	\$21,821,976	\$42,454,967	\$107,372,486	\$18	\$13,636,515	\$131,764,184	\$6
Towers	\$112,685,773	\$12,429,968	\$893,399	\$1,364,476	\$15,289,716	\$12,154,349	\$52,875,939	\$18,229,689	\$10,878,866	\$3,110,275	\$16,356,184	\$6
TRACONS	\$727,558,496	\$256,989,228	\$11,182,762	\$19,756,258	\$149,476,269	\$19,654,998	\$143,671,288	\$21,243,194	\$13,556,632	\$13,938,265	\$94,688,489	\$6
FSSs	\$234,279,163	\$9,818,314	\$434,877	\$761,928	\$13,952,781	\$14,865,668	\$136,769,465	\$29,815,938	\$18,694,121	\$1,176,528	\$22,987,543	\$6
TOTAL OPS BUDGET	\$2,417,893,056	1652,391,382	\$2,481,700	\$17,844,964	\$281,610,488	\$19,858,176	\$418,755,776	\$283,435,498	\$48,159,357	\$16,337,473	\$28,251,986	\$33,844,537
F&E	\$1,414,688,000	\$1738,295,645	\$37,147,842	\$32,382,941	\$274,874,436	\$26,178,746	\$57,115,289	\$99,819,236	\$6,585,274	\$5,844,125	\$126,837,256	\$6
R&D	\$229,000,000	\$104,611,274	\$5,253,821	\$17,549,522	\$41,756,982	\$4,399,535	\$14,079,770	\$13,488,123	\$1,731,645	\$872,982	\$15,738,739	\$19,515,674
AIR GRANTS	\$600,000,000	\$412,982,731	\$38,755,470	\$563,150	\$81,176,947	\$4,361,297	\$142,984,826	\$118,449,611	\$5,966,085	\$13,386,418	\$7,198,334	\$6
TOTAL DIRECT COSTS	\$4,860,643,656	\$1,980,281,632	\$105,548,832	\$106,268,987	\$681,828,765	\$114,532,756	\$621,936,172	\$426,492,378	\$54,384,362	\$25,648,999	\$463,214,246	\$349,568,214
INDIRECT COSTS												
Public Interest	\$6,396,268	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$456,631
Navaid Maintenance	\$198,902,281	\$34,143,241	\$1,765,958	\$2,472,285	\$13,922,686	\$13,842,702	\$13,111,465	\$10,768,863	\$1,705,844	\$773,281	\$16,398,568	\$6
Safety Regulation	\$46,618,113	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$46,618,113
ANTCs	\$154,746,649	\$58,393,658	\$13,730,793	\$4,683,471	\$16,284,135	\$5,284,386	\$5,194,829	\$27,128,536	\$8	\$953,682	\$13,896,568	\$6
Towers	\$32,544,372	\$2,326,516	\$210,863	\$129,826	\$3,576,231	\$2,857,813	\$11,235,382	\$4,286,385	\$2,556,048	\$731,312	\$1,445,771	\$6
TRACONS	\$164,004,918	\$64,380,486	\$2,798,865	\$1,945,655	\$37,399,938	\$4,917,815	\$19,622,859	\$6,855,887	\$3,392,013	\$985,361	\$25,571,796	\$6
FSSs	\$52,155,172	\$3,173,276	\$140,532	\$246,933	\$4,589,588	\$4,884,578	\$26,649,867	\$6,727,783	\$3,456,336	\$1,826,653	\$7,429,565	\$6
TOTAL OPS BUDGET	\$553,154,633	\$172,936,610	\$8,584,488	\$12,669,169	\$75,762,558	\$21,703,213	\$69,481,861	\$54,258,414	\$11,162,433	\$4,477,380	\$84,698,735	\$82,557,459
F&E	\$10,000,000	\$3,164,643	\$173,838	\$250,886	\$1,419,972	\$389,956	\$1,183,258	\$1,092,739	\$173,827	\$78,168	\$1,664,114	\$6
R&D	\$7,501,028	\$2,576,429	\$128,663	\$186,557	\$1,455,884	\$289,868	\$1,029,763	\$612,532	\$128,662	\$1,237,422	\$6	
AIR GRANTS	\$28,574,156	\$6,334,276	\$451,627	\$35,350	\$1,204,936	\$1,205,671	\$5,428,157	\$4,288,396	\$147,833	\$183,943	\$345,922	\$6
TOTAL INDIRECT COSTS	\$627,618,998	\$185,386,157	\$9,347,886	\$11,146,863	\$81,443,346	\$22,618,888	\$77,536,241	\$61,144,188	\$11,588,955	\$4,717,544	\$88,146,193	\$82,557,654
SECOND TOTAL	\$1,460,382,653	\$2,085,587,189	\$114,895,833	\$121,482,910	\$653,272,111	\$137,151,365	\$782,572,413	\$487,526,478	\$65,943,317	\$38,358,544	\$557,364,439	\$182,118,664
USER GROUP PERCENTS	100.00%	36.14%	2.18%	2.22%	13.96%	2.51%	12.85%	8.92%	1.21%	6.56%	16.19%	7.35%

Table 4.15

1990 MINIMUM GA ALLOCATION

HISTORIES

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TARI	BA-PISTON	BA-TURBO	TOTAL COST
OPERATIONS OVERHEAD	\$8	\$5,516,975	\$713,611	\$2,398,156	\$2,111,725	\$293,463
GRANT ADMINISTRATION	\$8	\$33,795,454	\$4,421,761	\$14,195,864	\$13,358,115	\$1,818,513
AVIATION STANDARDS						\$33,795,454
TOTAL OVERHEAD	\$8	\$39,312,429	\$5,135,371	\$16,593,228	\$15,471,841	\$2,111,996
CAPITAL PROJECTS						
BENEFITTING BA:	\$8	\$5,527,787	\$8	\$622,799	\$1,981,988	\$8
CS GRANTS	\$8	\$72,255,819	\$1,826,166	\$42,166,973	\$27,522,748	\$72,255,819
BA GRANTS	\$8	\$23,229,421	\$3,821,854	\$18,482,265	\$8,465,632	\$23,229,421
FIE BA PROJECTS	\$8	\$7,382,888	\$946,239	\$3,355,238	\$2,651,563	\$419,855
R&D BA PROJECTS						\$7,382,888
TOTAL CAPITAL PROJECTS	\$8	\$108,365,914	\$5,593,399	\$57,467,267	\$13,544,922	\$1,760,326
FLIGHT SERVICE STATIONS	\$168,722,600	\$31,566,667	\$16,122,268	\$136,868,562	\$29,862,477	\$10,315,967
AIR ROUTE TRAFFIC CONTROL CENTERS	\$146,957,538	\$16,753,789	\$38,153,958	\$66,849,863	\$6,641,735	\$140,957,538
TERMINAL NAVIGATION FACILITIES	\$8	\$12,086,047	\$1,559,395	\$5,188,376	\$4,617,548	\$12,086,047
TERMINAL CONTROL FACILITIES:						
TOWERS	\$20,675,697	\$25,287,816	\$4,944,663	\$29,382,864	\$7,115,376	\$6,421,991
TRUCKS	\$115,073,826	\$3,281,368	\$9,186,452	\$88,238,195	\$11,312,216	\$6,336,263
TOTAL MINIMUM BA ALLOCATION	\$437,629,654	\$219,682,248	\$59,295,658	\$371,752,262	\$197,474,235	\$25,588,278
FULL BA SHARE OF BUDGET						
--DOLLARS	\$157,582,755	\$746,946,677	\$27,415,595	\$73,864,843	\$1,567,099,870	
--PERCENTS	2.88%	13.78%	9.65%	1.34%	27.57%	
MINIMUM BA ALLOCATION AS PERCENT OF BUDGET	1.88%	6.88%	3.61%	0.47%	12.89%	
FULL BA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC						
--DOLLARS	\$137,151,565	\$702,572,413	\$487,635,478	\$65,943,317	\$1,393,383,764	
--PERCENTS	2.51%	12.85%	8.95%	1.21%	25.48%	
MINIMUM BA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC	1.00%	6.54%	3.37%	0.43%	11.38%	

1991

Table 4.16

1991 ALLOCATION

REGULATORY COSTS ALLOCATED TO USERS

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMPUTER	AIR TAXI	GEN AVIATION PISTON	GEN AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
<u>DIRECT COSTS</u>												
Public Interest	\$38,763,481	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$24,426,296
Navайд Maintenance	\$264,317,884	\$91,685,387	\$4,572,634	\$6,626,233	\$28,538,963	\$18,631,987	\$33,578,376	\$29,189,534	\$4,663,159	\$2,984,673	\$42,884,877	\$0
Safety Regulation	\$163,467,341	\$55,299,150	\$2,761,429	\$4,605,188	\$46,335,684	\$11,023,821	\$21,251,362	\$17,637,753	\$2,759,284	\$1,243,567	\$7,146,443	\$0
ARTCCs	\$71,233,337	\$284,722,394	\$15,531,398	\$19,497,421	\$78,354,367	\$23,186,611	\$44,678,486	\$114,284,945	\$0	\$1,868,688	\$131,937,726	\$0
Towers	\$151,435,748	\$11,762,284	\$989,876	\$1,511,821	\$16,749,674	\$12,329,378	\$54,841,218	\$19,392,198	\$11,561,698	\$1,386,615	\$16,346,546	\$0
TRACONs	\$793,616,387	\$272,888,582	\$11,671,266	\$28,986,537	\$162,298,397	\$22,486,887	\$163,161,165	\$27,692,568	\$15,511,483	\$1,586,692	\$19,221,496	\$0
FSSs	\$234,455,544	\$9,747,444	\$431,849	\$758,641	\$13,982,124	\$15,818,374	\$13,143,864	\$21,019,742	\$18,886,288	\$2,287,948	\$22,353,774	\$0
TOTAL OPS BUDGET	\$2,355,289,553	\$728,817,866	\$36,161,452	\$53,397,896	\$132,252,389	\$95,196,257	\$45,646,484	\$229,217,725	\$15,381,385	\$16,425,782	\$226,258,856	\$24,426,296
FIE	\$1,414,580,868	\$725,886,033	\$36,987,396	\$52,004,571	\$279,959,311	\$27,858,983	\$157,993,155	\$184,487,377	\$6,678,520	\$5,864,282	\$122,711,633	\$0
R&D	\$237,860,000	\$114,568,968	\$5,749,243	\$8,272,986	\$17,044,617	\$5,481,885	\$17,368,888	\$16,232,955	\$2,178,539	\$1,878,268	\$19,004,465	\$0
AIR GRANTS	\$630,000,000	\$412,947,162	\$38,743,588	\$561,175	\$61,483,642	\$11,398,128	\$143,277,139	\$119,775,284	\$5,921,484	\$3,378,633	\$7,801,886	\$0
TOTAL DIRECT COSTS	\$4,865,889,553	\$1,981,331,221	\$183,561,591	\$114,232,638	\$758,688,888	\$132,728,365	\$671,285,578	\$455,631,948	\$68,866,689	\$27,958,965	\$477,011,997	\$24,426,296
<u>INDIRECT COSTS</u>												
Public Interest	\$46,900,168	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$151,358,142
Navайд Maintenance	\$160,885,079	\$37,429,850	\$1,868,374	\$2,711,584	\$15,746,987	\$1,341,221	\$11,682,677	\$11,926,819	\$1,967,814	\$857,516	\$17,494,636	\$0
Safety Regulation	\$46,671,002	\$17,219,946	\$659,881	\$1,217,285	\$10,932,828	\$2,335,458	\$6,119,722	\$5,012,355	\$788,198	\$1,251,964	\$3,251,692	\$0
ARTCCs	\$187,817,632	\$77,376,794	\$4,228,847	\$5,298,662	\$19,119,659	\$6,279,584	\$5,873,266	\$31,058,886	\$0	\$1,183,596	\$26,647,282	\$0
Towers	\$37,961,373	\$3,598,719	\$258,844	\$395,323	\$1,379,696	\$3,386,921	\$12,762,735	\$5,078,898	\$1,823,918	\$865,174	\$4,204,955	\$0
TRACONs	\$260,259,576	\$75,547,850	\$3,267,393	\$5,810,681	\$44,938,188	\$6,226,853	\$24,347,813	\$17,666,775	\$1,294,358	\$1,247,513	\$27,152,734	\$0
FSSs	\$59,949,767	\$3,652,763	\$161,631	\$284,294	\$5,239,634	\$5,624,999	\$23,483,135	\$7,876,954	\$1,847,388	\$1,202,149	\$6,376,726	\$0
TOTAL OPS BUDGET	\$451,856,479	\$214,825,120	\$19,657,801	\$15,747,635	\$169,489,992	\$28,691,165	\$67,149,348	\$68,611,919	\$14,861,498	\$5,634,912	\$197,798,796	\$17,494,632
FIE	\$12,189,653	\$4,167,224	\$286,814	\$435,216	\$32,691	\$1,753,179	\$483,661	\$1,682,984	\$1,327,863	\$212,485	\$195,471	\$1,947,248
R&D	\$9,382,489	\$3,286,939	\$168,888	\$232,325	\$1,349,161	\$372,287	\$1,384,351	\$1,821,874	\$163,459	\$73,471	\$1,498,523	\$0
AIR GRANTS	\$19,415,666	\$5,968,889	\$435,216	\$32,691	\$1,753,179	\$483,661	\$1,682,984	\$1,327,863	\$212,485	\$195,471	\$193,847	\$0
TOTAL INDIRECT COSTS	\$692,844,398	\$228,168,092	\$11,458,395	\$16,314,745	\$186,549,886	\$28,772,789	\$74,931,613	\$14,577,124	\$5,887,745	\$181,538,486	\$7,494,632	
GRAND TOTAL	\$5,496,933,951	\$2,299,499,313	\$12,421,986	\$138,597,375	\$837,289,965	\$162,931,155	\$764,378	\$338,627,553	\$74,641,812	\$13,856,718	\$378,362,483	\$31,947,104
USER GROUP PERCENTS	100.00%	48.16%	2.28%	2.37%	15.59%	2.95%	13.98%	9.63%	1.36%	0.62%	16.22%	0.58%

Table 4.17

1991 ALLOCATION
REGULATORY COSTS ALLOCATED TO PUBLIC

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMPUTER	AIR TAXI	BEN. AVIATION PISTON	BEN. AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST	
<u>DIRECT COSTS</u>													
Public Interest	\$38,763,461	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Navайд Maintenance	\$264,317,884	\$91,685,387	\$4,572,634	\$6,535,293	\$33,538,963	\$10,621,987	\$33,574,376	\$49,189,534	\$44,568,159	\$2,998,673	\$42,384,877	\$21,426,294	
Safety Regulation	\$381,229,617	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
ARTCCs	\$711,231,337	\$284,722,394	\$15,531,378	\$19,497,421	\$70,354,367	\$23,186,611	\$44,678,485	\$114,284,045	\$48	\$1,069,868	\$13,997,726	\$0	
Towers	\$151,435,748	\$13,752,284	\$988,876	\$11,511,824	\$16,749,674	\$12,929,376	\$24,641,218	\$19,392,198	\$11,564,998	\$13,389,615	\$16,385,688	\$0	
TRACONS	\$799,616,387	\$272,880,582	\$11,874,266	\$28,988,537	\$162,298,597	\$22,488,887	\$153,161,185	\$27,692,868	\$15,511,483	\$1,586,692	\$19,221,896	\$0	
FSSs	\$234,155,544	\$9,747,448	\$431,849	\$13,982,824	\$15,810,374	\$137,113,864	\$21,619,742	\$18,886,288	\$13,287,948	\$22,353,374	\$0	\$0	
TOTAL OPS BUDGET	\$2,493,851,229	\$672,718,088	\$131,488,822	\$149,352,715	\$381,915,625	\$84,167,236	\$43,395,842	\$211,578,372	\$42,545,421	\$17,182,216	\$32,181,656	\$325,653,316	
F&E	\$1,414,548,468	\$725,886,833	\$36,947,396	\$32,088,571	\$279,359,511	\$27,658,963	\$57,993,155	\$104,447,977	\$6,676,528	\$5,884,282	\$122,711,653	\$0	
R&D	\$237,888,888	\$107,591,171	\$3,481,334	\$7,768,866	\$14,112,381	\$1,672,158	\$11,727,846	\$14,812,879	\$1,815,346	\$918,598	\$15,791,397	\$28,197,448	
ALP GRANTS	\$386,888,888	\$112,947,162	\$18,743,586	\$561,175	\$81,403,642	\$1,998,128	\$143,277,139	\$109,775,284	\$15,921,164	\$3,378,533	\$7,301,840	\$0	
TOTAL DIRECT COSTS	\$4,944,651,229	\$1,919,862,374	\$189,482,253	\$189,722,527	\$187,391,159	\$129,888,489	\$69,393,183	\$435,773,782	\$56,952,352	\$26,355,721	\$465,686,786	\$345,852,764	
<u>INDIRECT COSTS</u>													
Public Interest	\$5,354,888	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Navайд Maintenance	\$81,289,365	\$27,980,472	\$1,392,699	\$2,821,233	\$11,737,914	\$3,236,212	\$11,010,069	\$8,098,334	\$1,422,998	\$639,198	\$13,437,195	\$0	
Safety Regulation	\$42,795,146	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
ARTCCs	\$153,245,982	\$63,349,595	\$3,455,674	\$4,138,098	\$15,651,566	\$5,141,129	\$4,948,191	\$25,427,743	\$8	\$983,531	\$3,436,455	\$0	
Towers	\$38,561,453	\$2,889,288	\$292,962	\$386,647	\$1,419,893	\$2,639,268	\$10,841,714	\$1,958,547	\$2,366,565	\$675,304	\$2,244,979	\$0	
TRACONS	\$161,371,557	\$68,586,355	\$2,632,985	\$4,653,438	\$35,985,917	\$1,985,586	\$28,249,178	\$6,148,393	\$3,439,392	\$999,145	\$21,774,936	\$0	
FSSs	\$46,621,622	\$2,789,041	\$123,565	\$217,878	\$4,088,685	\$1,294,927	\$18,777,774	\$6,814,391	\$3,898,293	\$917,892	\$6,355,944	\$0	
TOTAL OPS BUDGET	\$521,448,224	\$157,354,742	\$7,865,985	\$11,538,839	\$76,786,275	\$28,386,824	\$65,829,868	\$50,431,359	\$16,312,349	\$1,135,158	\$7,198,874	\$44,363,621	
F&E	\$9,072,117	\$3,108,824	\$154,783	\$224,637	\$1,384,537	\$259,891	\$1,261,357	\$988,661	\$158,058	\$71,644	\$1,444,938	\$0	
R&D	\$6,982,718	\$2,386,378	\$119,120	\$172,688	\$1,083,965	\$276,978	\$971,597	\$768,466	\$121,535	\$54,672	\$1,115,875	\$0	
ALP GRANTS	\$18,557,936	\$5,629,589	\$415,784	\$46,496,513	\$11,962,195	\$76,805,632	\$215,389	\$1,989,892	\$1,857,326	\$131,391	\$93,587	\$297,463	\$0
TOTAL INDIRECT COSTS	\$356,132,994	\$168,551,473	\$186,482,253	\$187,391,159	\$121,639,723	\$783,488,811	\$62,848,694	\$122,356,684	\$191,810,664	\$167,677,776	\$38,918,118	\$544,448,355	\$394,216,345
GRAND TOTAL	\$5,361,101,224	\$2,687,683,847	\$114,946,765	\$121,639,723	\$783,488,811	\$62,848,694	\$122,356,684	\$191,810,664	\$167,677,776	\$38,918,118	\$544,448,355	\$394,216,345	
USER GROUP PERCENTS	100.00%	37.95%	2.89%	2.21%	14.24%	2.58%	13.13%	8.94%	1.23%	0.56%	9.98%	7.17%	

Table 4.18

**MINSYS
1991 MINIMUM GA ALLOCATION**

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	BA-PISTON	BA-TURBO	ROTORGRAFT	TOTAL COST
OPERATIONS OVERHEAD	\$8	\$5,853,358	\$652,874	\$2,285,809	\$1,913,926	\$274,751	\$5,853,358
GRANT ADMINISTRATION	\$8	\$35,365,478	\$4,693,727	\$14,914,372	\$13,848,228	\$1,917,152	\$35,365,478
AVIATION STANDARDS							
TOTAL OVERHEAD	\$8	\$48,418,835	\$5,356,681	\$17,128,188	\$15,754,146	\$2,181,983	\$48,418,835
CAPITAL PROJECTS							
BENEFITTING GA:							
CS GRANTS	\$8	\$5,527,787	\$8	\$622,799	\$4,984,988	\$8	\$5,527,787
GA GRANTS	\$8	\$72,255,819	\$1,626,186	\$43,186,973	\$21,522,148	\$8	\$72,255,819
F&E GA PROJECTS	\$8	\$23,238,910	\$3,868,352	\$10,424,541	\$8,482,826	\$1,343,989	\$23,238,910
R&D GA PROJECTS	\$8	\$7,510,103	\$982,729	\$3,455,925	\$2,725,462	\$435,968	\$7,510,103
TOTAL CAPITAL PROJECTS	\$8	\$188,624,618	\$5,679,187	\$57,610,237	\$43,555,238	\$1,779,957	\$188,624,618
FLIGHT SERVICE STATIONS	\$160,247,882	\$33,236,826	\$16,366,375	\$137,280,332	\$29,523,849	\$10,394,151	\$193,484,784
AIR ROUTE TRAFFIC CONTROL CENTERS	\$148,276,253	\$8	\$18,218,114	\$29,952,336	\$90,185,884	\$8	\$148,276,253
TERMINAL NAVIGATION FACILITIES	\$8	\$13,296,137	\$1,732,988	\$5,759,718	\$5,861,124	\$716,887	\$13,296,137
TERMINAL CONTROL FACILITIES:							
TOWERS	\$23,247,246	\$29,519,085	\$5,841,251	\$32,939,645	\$8,761,829	\$5,224,448	\$52,766,325
TRACONS	\$133,938,586	\$4,111,875	\$10,682,444	\$182,704,448	\$13,165,697	\$7,375,805	\$136,861,828
TOTAL MINIMUM GA ALLOCATION	\$465,709,962	\$229,288,571	\$63,986,959	\$333,286,848	\$285,928,186	\$27,577,464	\$492,941,961
FULL GA SHARE OF BUDGET							
--DOLLARS							
--PERCENTS							
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET							
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC	\$142,010,694	\$722,356,694	\$491,818,864	\$67,677,776	\$1,423,886,228		
--DOLLARS							
--PERCENTS							
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC	2.95%	13.98%	9.65%	1.36%	27.94%		
	1.16%	7.15%	3.74%	0.58%	12.68%		

1992

Table 4.19

**1992 ALLOCATION
REGULATORY COSTS ALLOCATED TO USERS**

REGULATORY COSTS ALLOCATED TO USERS										MILITARY	PUBLIC INTEREST
	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMUTER	AIR TAI	BUS	AVIATION PISTON	AVIATION TURBINE	ROTOR	GOVERNMENT
DIRECT COSTS											
Public Interest	\$12,427,289	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,617,613
Navaid Maintenance	\$241,521,337	\$63,141,273	\$4,147,981	\$6,925,411	\$35,922,763	\$9,962,428	\$1,311,474,763	\$26,781,439	\$1,331,675	\$1,936,394	\$37,796,817
Safety Regulation	\$171,653,727	\$57,473,436	\$2,866,529	\$1,164,326	\$12,675,966	\$11,668,942	\$122,348,798	\$18,387,541	\$2,967,641	\$1,383,326	\$7,254,616
ARTCCs	\$745,855,118	\$297,286,268	\$15,216,748	\$20,357,779	\$76,236,289	\$25,387,921	\$46,982,226	\$28,916,881	\$0	\$4,296,572	\$134,178,588
Towers	\$168,618,756	\$15,215,567	\$1,896,559	\$1,674,764	\$18,441,215	\$13,734,864	\$57,678,935	\$28,686,383	\$12,284,521	\$3,514,738	\$16,347,353
TRCONs	\$887,169,569	\$289,428,518	\$12,594,341	\$22,261,316	\$17,865,171	\$25,662,238	\$18,816,916,728	\$131,686,521	\$17,798,265	\$5,141,934	\$101,856,548
FSSs	\$213,744,584	\$9,645,477	\$427,441	\$759,832	\$13,965,654	\$15,196,997	\$13,156,252	\$21,156,231	\$1,229,899	\$21,665,719	\$4
TOTAL OPS BUDGET	\$2,452,489,372	\$752,228,471	\$37,351,599	\$35,236,826	\$163,216,979	\$181,523,775	\$48,326,695	\$29,445,836	\$8,895,994	\$119,422,865	\$229,751,257
FIE	\$1,414,686,868	\$721,063,610	\$36,632,684	\$51,581,764	\$285,977,387	\$27,984,816	\$58,983,338	\$181,821,655	\$6,761,714	\$5,126,678	\$119,437,778
R&D	\$218,800,868	\$108,821,349	\$5,857,318	\$7,284,492	\$42,533,967	\$4,982,588	\$15,636,451	\$14,432,133	\$1,949,846	\$955,868	\$16,346,848
AIP GRANTS	\$684,060,868	\$412,965,265	\$38,741,232	\$558,516	\$81,627,173	\$5,878,521	\$143,592,393	\$199,381,538	\$5,335,747	\$3,378,949	\$6,895,674
TOTAL DIRECT COSTS	\$4,877,069,372	\$1,987,861,635	\$189,482,222	\$114,766,798	\$773,385,446	\$139,564,988	\$698,458,869	\$464,283,154	\$22,742,561	\$26,875,553	\$472,341,548
INDIRECT COSTS											
Public Interest	\$7,350,864	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$429,673
Navaid Maintenance	\$87,783,065	\$29,919,429	\$1,191,298	\$2,178,854	\$12,946,218	\$3,586,640	\$12,837,161	\$9,646,381	\$1,560,371	\$697,534	\$13,616,817
Safety Regulation	\$43,798,827	\$15,395,297	\$768,299	\$1,115,727	\$10,042,145	\$2,591,591	\$5,542,683	\$4,590,294	\$715,269	\$2,728,417	\$2,799,806
ARTCCs	\$178,656,134	\$79,253,082	\$3,632,254	\$4,819,848	\$18,815,728	\$5,999,536	\$5,581,331	\$28,571,484	\$0	\$1,015,343	\$22,653,616
Towers	\$35,826,941	\$3,389,547	\$23,799	\$372,351	\$1,180,652	\$1,653,684	\$12,146,241	\$4,588,883	\$2,731,228	\$781,435	\$13,634,521
TRCONs	\$189,186,837	\$67,732,059	\$3,434,392	\$5,363,484	\$12,465,442	\$6,182,876	\$24,738,662	\$7,613,686	\$4,264,577	\$1,238,861	\$21,541,878
FSSs	\$52,378,720	\$3,129,696	\$138,792	\$4,531,757	\$4,962,115	\$28,953,521	\$6,465,849	\$3,527,653	\$1,047,828	\$7,638,374	\$4
TOTAL OPS BUDGET	\$586,846,546	\$191,858,104	\$9,511,645	\$11,876,636	\$92,835,341	\$26,318,643	\$68,985,719	\$51,781,917	\$12,799,297	\$5,181,418	\$84,784,366
FIE	\$10,732,526	\$3,649,265	\$182,865	\$264,513	\$1,576,734	\$437,291	\$1,512,826	\$1,175,632	\$1,98,127	\$84,993	\$1,659,878
R&D	\$7,319,624	\$2,186,325	\$124,144	\$188,364	\$1,875,128	\$298,176	\$1,832,967	\$481,688	\$129,642	\$17,954	\$1,131,276
AIP GRANTS	\$117,859,353	\$5,231,365	\$381,848	\$27,578	\$2,683,124	\$208,932	\$4,532,684	\$3,541,384	\$122,833	\$485,825	\$261,882
TOTAL INDIRECT COSTS	\$621,168,051	\$283,219,058	\$18,199,654	\$14,549,351	\$97,378,342	\$27,255,843	\$47,984,138	\$13,241,988	\$5,334,182	\$87,756,613	\$6,961,218
GRAND TOTAL	\$5,498,168,423	\$2,190,226,753	\$128,861,886	\$129,516,149	\$878,755,787	\$166,823,943	\$766,443,867	\$531,583,715	\$75,984,481	\$34,285,735	\$560,888,161
USER GROUP PERCENTS	100.00%	39.84%	2.18%	2.35%	15.84%	3.03%	14.38%	9.67%	1.38%	0.52%	16.19%

Table 4.20

1992 ALLOCATION
REGULATORY COSTS ALLOCATED TO PUBLIC

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMPUTER	AIR TAXI	GEN. AVIATION	GEN. AVIATION PISTON	PILOTAGE	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	\$32,427,285	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$25,779,613
Navайд Maintenance	\$21,327,337	\$82,144,273	\$4,147,381	\$6,826,411	\$35,922,763	\$9,362,824	\$31,471,763	\$26,784,439	\$4,331,675	\$1,936,394	\$17,786,817	\$4
Safety Regulation	\$294,722,681	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$294,722,681
ARTCCs	\$75,859,118	\$297,286,268	\$15,216,748	\$29,357,779	\$76,236,289	\$25,367,321	\$46,982,224	\$129,916,881	\$8	\$1,296,572	\$138,178,588	\$4
Towers	\$164,618,756	\$15,215,587	\$1,896,559	\$1,674,768	\$18,441,215	\$13,731,864	\$57,571,935	\$28,689,383	\$12,234,521	\$1,514,738	\$16,347,353	\$4
TRACONS	\$657,169,569	\$289,426,518	\$12,594,341	\$22,261,316	\$176,885,171	\$25,682,238	\$18,915,732	\$31,588,521	\$17,796,255	\$5,141,934	\$18,558,548	\$4
FSSs	\$233,744,584	\$9,645,177	\$427,441	\$750,632	\$113,965,654	\$15,186,997	\$136,985,212	\$21,156,231	\$18,871,891	\$3,229,899	\$21,683,719	\$4
TOTAL OPS BUDGET	\$2,576,869,286	\$694,747,435	\$34,483,878	\$51,871,988	\$320,571,812	\$85,851,833	\$457,977,897	\$221,868,295	\$15,188,353	\$16,118,737	\$322,496,638	\$28,382,326
F&E	\$1,414,680,880	\$721,653,618	\$36,652,884	\$51,681,764	\$265,977,387	\$27,984,816	\$58,383,338	\$101,821,655	\$6,761,714	\$5,126,678	\$119,437,770	\$4
R&D	\$219,884,888	\$94,686,478	\$4,751,244	\$6,629,813	\$28,863,228	\$1,247,447	\$13,239,444	\$12,455,749	\$1,629,418	\$812,985	\$13,357,729	\$17,896,473
AIP GRANTS	\$891,883,888	\$442,986,265	\$38,741,232	\$558,516	\$81,627,173	\$5,078,521	\$143,592,393	\$109,383,538	\$5,925,747	\$3,378,949	\$6,865,674	\$4
TOTAL DIRECT COSTS	\$5,866,663,326	\$1,923,393,388	\$116,627,638	\$118,151,198	\$728,658,792	\$121,164,816	\$673,713,864	\$443,919,238	\$59,515,231	\$27,429,342	\$462,297,811	\$138,398,831
INDIRECT COSTS												
Public Interest	\$5,581,044	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$119,483
Navайд Maintenance	\$65,434,361	\$22,317,548	\$1,113,444	\$1,617,672	\$9,642,768	\$2,671,323	\$9,419,897	\$7,189,756	\$1,162,753	\$519,787	\$18,146,749	\$4
Safety Regulation	\$38,459,585	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$34,419,585
ARTCCs	\$139,643,622	\$57,421,373	\$3,132,457	\$1,932,347	\$114,725,929	\$4,963,978	\$4,687,452	\$23,356,516	\$8	\$429,934	\$26,698,435	\$4
Towers	\$26,118,768	\$2,645,842	\$198,249	\$298,565	\$3,195,186	\$2,382,951	\$16,255,668	\$13,571,861	\$2,131,322	\$682,795	\$2,336,295	\$4
TRACONS	\$151,811,242	\$55,726,638	\$2,424,918	\$4,286,199	\$33,888,888	\$4,941,812	\$28,158,189	\$6,884,372	\$1,488,813	\$994,823	\$19,611,870	\$4
FSSs	\$40,679,531	\$2,396,761	\$185,947	\$106,184	\$3,461,575	\$3,744,472	\$16,581,558	\$5,243,856	\$2,614,744	\$808,376	\$5,170,139	\$4
TOTAL OPS BUDGET	\$469,639,884	\$10,528,454	\$6,967,815	\$10,312,887	\$64,917,838	\$18,546,737	\$61,848,876	\$45,448,581	\$9,356,832	\$3,749,388	\$6,175,256	\$44,517,496
F&E	\$7,989,394	\$2,716,128	\$135,589	\$196,875	\$1,173,551	\$225,473	\$1,127,244	\$875,814	\$111,518	\$43,288	\$1,234,839	\$4
R&D	\$5,448,798	\$1,652,133	\$92,404	\$124,258	\$800,249	\$221,941	\$769,469	\$556,675	\$96,496	\$13,137	\$442,842	\$4
AIP GRANTS	\$16,389,394	\$5,419,845	\$366,395	\$261,192	\$2,577,306	\$192,648	\$4,355,151	\$3,482,754	\$117,793	\$82,377	\$449,746	\$4
TOTAL INDIRECT COSTS	\$499,466,671	\$158,891,753	\$7,561,324	\$10,678,284	\$69,458,936	\$19,386,791	\$67,299,940	\$58,323,821	\$9,732,632	\$3,938,694	\$57,381,876	\$43,571,496
GRAND TOTAL	\$15,506,135,997	\$2,073,485,441	\$114,188,955	\$126,821,394	\$797,521,728	\$146,551,887	\$741,813,884	\$494,242,254	\$9,257,663	\$31,368,836	\$529,599,649	\$382,076,327
USER GROUP PERCENTS	100.00%	37.78%	2.88%	2.28%	14.50%	2.66%	13.47%	8.99%	1.26%	0.57%	9.63%	6.95%

MINSYS

Table 4.21

1992 MINIMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD	\$4,536,665	\$693,418	\$1,989,932	\$1,698,226	\$245,869	\$4,536,665	
BARENT ADMINISTRATION	\$8	\$37,868,621	\$1,981,641	\$15,642,221	\$14,321,374	\$2,823,381	\$37,868,621
AVIATION STANDARDS							
TOTAL OVERHEAD	\$41,545,286	\$15,585,659	\$17,672,153	\$16,019,584	\$2,268,470	\$41,545,286	
CAPITAL PROJECTS							
BENEFITTING SA:							
CG GRANTS	\$8	\$5,527,787	\$8	\$622,799	\$1,964,968	\$8	\$5,527,787
GA GRANTS	\$9	\$72,235,119	\$1,626,186	\$43,186,973	\$27,522,748	\$8	\$72,235,119
FLE GA PROJECTS	\$9	\$23,232,388	\$3,180,463	\$10,448,487	\$8,135,466	\$1,346,832	\$23,232,388
R&D GA PROJECTS	\$9	\$6,743,555	\$991,169	\$3,859,104	\$2,395,829	\$387,462	\$6,743,555
TOTAL CAPITAL PROJECTS	\$9	\$107,759,548	\$5,617,728	\$57,247,362	\$13,158,963	\$1,755,194	\$107,759,548
FLIGHT SERVICE STATIONS	\$156,967,924	\$34,970,985	\$16,564,178	\$137,623,733	\$29,905,798	\$10,437,281	\$193,934,989
AIR ROUTE TRAFFIC CONTROL CENTERS	\$155,906,389	\$8	\$19,794,758	\$41,610,544	\$94,296,987	\$8	\$155,906,389
TERMINAL NAVIGATION FACILITIES	\$0	\$14,789,106	\$1,969,875	\$6,358,608	\$5,541,656	\$793,774	\$14,789,106
TERMINAL CONTROL FACILITIES:							
TOWERNS	\$25,056,982	\$34,543,879	\$6,914,439	\$35,938,582	\$10,374,655	\$6,164,304	\$60,398,988
TRACONS	\$155,694,624	\$45,255,826	\$12,429,249	\$11,937,824	\$15,305,482	\$8,572,949	\$158,185,869
TOTAL MINIMUM GA ALLOCATION	\$436,421,759	\$238,793,859	\$68,982,486	\$116,470,658	\$214,598,986	\$29,998,192	\$732,449,298
FULL GA SHARE OF BUDGET ¹	--DOLLARS						
		\$165,823,943	\$786,443,807	\$1531,583,715	\$75,981,401	\$1,568,835,865	
—PERCENTS							
		3.03%	14.38%	9.67%	1.38%	28.35%	
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET							
		1.25%	7.57%	3.90%	0.55%	13.32%	
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC	--DOLLARS						
		\$146,351,607	\$741,013,804	\$494,242,254	\$69,267,863	\$1,451,874,729	
—PERCENTS							
		2.66%	13.47%	8.99%	1.26%	26.38%	
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC							
		1.15%	7.29%	3.64%	0.51%	12.61%	

1993

Table 4.22

**1993 ALLOCATION
REGULATORY COSTS ALLOCATED TO USERS**

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMPUTER	AIR TAXI	GEN. AVIATION	PISTON	TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS													
Public Interest	\$33,931,916	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8
Navaid Maintenance	\$252,734,265	\$87,728,138	\$4,369,258	\$6,352,293	\$38,376,331	\$16,511,915	\$32,738,936	\$27,821,332	\$1,435,681	\$2,618,987	\$38,325,210	\$4	\$25,375,454
Safety Regulation	\$176,998,628	\$60,118,584	\$2,995,635	\$1,259,134	\$45,025,646	\$12,247,848	\$23,386,639	\$19,176,672	\$3,829,707	\$1,356,616	\$7,372,538	\$4	\$16,747,672
ATC/Cs	\$789,971,324	\$15,914,149	\$17,183,791	\$21,571,761	\$93,897,191	\$27,385,854	\$19,790,169	\$127,691,961	\$4	\$1,537,316	\$112,469,183	\$4	\$16,747,672
Towers	\$168,121,039	\$15,131,575	\$1,189,942	\$1,695,200	\$19,286,394	\$11,343,895	\$61,582,489	\$21,512,561	\$12,828,526	\$3,670,384	\$16,747,672	\$4	\$16,747,672
TRACONs	\$919,863,989	\$131,476,975	\$13,597,284	\$21,834,863	\$168,328,518	\$26,767,289	\$194,482,589	\$32,882,385	\$16,118,278	\$5,354,515	\$103,626,244	\$4	\$16,747,672
FSSs	\$247,261,325	\$16,216,789	\$452,497	\$795,801	\$14,867,226	\$15,981,398	\$145,214,883	\$22,377,258	\$11,494,994	\$13,411,513	\$22,436,366	\$4	\$25,375,454
TOTAL OPS BUDGET	\$2,598,915,218	\$889,578,182	\$39,786,419	\$58,817,672	\$389,752,681	\$107,632,538	\$386,981,666	\$251,462,178	\$58,267,897	\$28,341,445	\$337,934,183	\$4	\$25,375,454
FIE	\$1,488,237,448	\$733,762,869	\$38,256,515	\$54,892,642	\$383,642,555	\$28,985,579	\$61,481,875	\$105,296,146	\$7,821,812	\$15,138,739	\$121,565,118	\$4	\$16,747,672
R&D	\$219,744,808	\$105,534,125	\$5,285,594	\$17,629,518	\$45,122,891	\$15,278,822	\$16,261,866	\$15,016,394	\$2,825,427	\$99,866	\$16,591,166	\$4	\$16,747,672
AlP Grants	\$637,129,690	\$432,134,941	\$32,178,354	\$589,656	\$45,887,586	\$1,382,254	\$150,174,579	\$114,182,768	\$6,287,278	\$3,510,113	\$6,963,359	\$4	\$16,747,672
TOTAL DIRECT COSTS	\$5,126,816,558	\$12,895,109,256	\$115,439,913	\$121,863,639	\$421,322,853	\$148,288,185	\$734,827,146	\$405,913,477	\$53,867	\$19,182,152	\$483,958,768	\$4	\$25,375,454
INDIRECT COSTS													
Public Interest	\$7,399,236	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8
Navaid Maintenance	\$67,722,486	\$38,284,793	\$1,584,478	\$2,138,737	\$13,215,870	\$13,619,582	\$11,978,963	\$9,579,758	\$1,547,976	\$892,281	\$113,961,916	\$4	\$16,747,672
Safety Regulation	\$143,657,349	\$15,437,146	\$763,129	\$1,119,664	\$10,159,893	\$2,685,639	\$5,526,768	\$4,488,412	\$712,728	\$1319,489	\$2,718,744	\$4	\$16,747,672
ATC/Cs	\$172,371,293	\$74,985,539	\$3,872,288	\$14,858,996	\$14,685,172	\$6,286,327	\$5,378,278	\$28,774,197	\$8	\$1,822,442	\$12,104,868	\$4	\$16,747,672
Towers	\$34,985,624	\$3,278,456	\$225,233	\$359,268	\$1,865,147	\$3,829,772	\$12,389,492	\$4,539,216	\$2,716,745	\$777,875	\$3,549,346	\$4	\$16,747,672
TRACONs	\$191,421,957	\$71,772,073	\$3,123,127	\$5,528,338	\$43,271,417	\$6,133,395	\$24,790,698	\$7,552,675	\$1,234,447	\$1,228,947	\$23,481,658	\$4	\$16,747,672
FSSs	\$52,913,441	\$3,162,794	\$108,079	\$246,186	\$1,682,587	\$4,947,345	\$21,326,182	\$6,927,304	\$3,558,493	\$1,057,827	\$6,945,682	\$4	\$16,747,672
TOTAL OPS BUDGET	\$598,665,382	\$19,832,772	\$9,644,245	\$114,296,898	\$94,228,264	\$26,634,110	\$81,582,445	\$61,881,562	\$12,768,421	\$5,897,988	\$82,745,984	\$4	\$16,747,672
FIE	\$16,731,585	\$2,684,355	\$183,315	\$1,610,213	\$441,834	\$1,561,582	\$1,157,262	\$184,616	\$84,352	\$1,688,861	\$16,747,672	\$4	\$16,747,672
R&D	\$7,318,983	\$2,569,588	\$124,999	\$182,017	\$1,897,972	\$1,089,732	\$1,825,174	\$795,933	\$126,613	\$57,518	\$1,895,464	\$4	\$16,747,672
AlP Grants	\$17,875,426	\$5,236,558	\$382,668	\$27,447	\$2,598,216	\$203,464	\$4,538,728	\$3,533,836	\$122,713	\$85,242	\$425,553	\$4	\$16,747,672
TOTAL INDIRECT COSTS	\$425,791,297	\$1286,259,246	\$10,334,827	\$14,731,696	\$99,626,866	\$27,579,341	\$86,629,849	\$67,377,795	\$13,286,363	\$5,325,871	\$45,765,882	\$4	\$16,747,672
Grand Total	\$5,751,687,355	\$2,298,658,582	\$125,765,546	\$135,863,335	\$323,958,739	\$175,659,565	\$823,466,995	\$553,251,272	\$78,732,376	\$35,597,853	\$568,755,768	\$4	\$16,747,672
USER GROUP PERCENTS	198,805	39,355	2,191	2,365	16,865	3,865	11,315	9,621	1,374	6,621	9,621	4,595	

Table 4.23

1993 ALLOCATION

REGULATORY COSTS ALLOCATED TO PUBLIC

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMPUTER	AIR TRAI GENL AVIATION	GENL AVIATION PISTON	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS											
Public Interest	\$13,931,916	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4
Navайд Maintenance	\$252,734,245	\$47,729,138	\$44,369,254	\$46,352,293	\$48,378,931	\$48,511,915	\$42,738,836	\$427,421,332	\$44,495,681	\$42,818,587	\$34,326,218
Safety Regulation	\$383,566,478	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4
ARTCCs	\$789,971,324	\$315,414,149	\$17,183,791	\$21,571,761	\$87,887,191	\$27,985,864	\$49,798,189	\$127,691,961	\$8	\$4,537,316	\$142,465,143
Towers	\$164,121,439	\$15,431,575	\$1,169,942	\$1,685,208	\$19,284,394	\$14,343,495	\$61,582,489	\$21,512,561	\$12,828,526	\$13,678,384	\$16,747,672
TRACONs	\$919,863,989	\$312,476,973	\$13,597,284	\$24,834,863	\$188,392,518	\$26,781,289	\$194,482,589	\$32,382,385	\$18,418,278	\$15,358,515	\$18,625,248
FSSs	\$217,291,325	\$18,216,769	\$452,497	\$795,861	\$14,867,126	\$15,981,398	\$145,244,883	\$22,377,288	\$11,494,994	\$13,414,513	\$22,436,366
TOTAL OPS BUDGET	\$2,715,498,684	\$748,857,598	\$36,712,785	\$51,458,358	\$34,726,761	\$55,445,482	\$48,078,826	\$232,285,498	\$47,237,396	\$16,983,215	\$38,561,653
FIE	\$1,486,237,446	\$753,762,869	\$38,265,545	\$51,082,682	\$383,649,855	\$29,926,579	\$61,463,835	\$105,258,146	\$7,824,812	\$15,356,739	\$121,565,118
R&D	\$219,744,888	\$39,866,678	\$4,363,158	\$7,159,994	\$42,289,853	\$4,583,978	\$13,772,983	\$12,965,272	\$1,623,667	\$845,697	\$13,722,759
ALP GRANTS	\$837,128,086	\$432,134,941	\$32,176,354	\$589,856	\$85,897,586	\$15,382,254	\$154,174,579	\$114,182,768	\$6,287,278	\$3,518,113	\$6,958,359
TOTAL DIRECT COSTS	\$5,252,592,198	\$2,825,817,218	\$112,112,823	\$116,268,789	\$776,473,975	\$135,257,393	\$785,828,824	\$664,683,683	\$62,163,139	\$28,675,783	\$472,849,888
INDIRECT COSTS											
Public Interest	\$5,581,622	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4
Navайд Maintenance	\$65,436,944	\$22,505,713	\$1,128,987	\$1,632,327	\$9,645,682	\$2,696,965	\$8,994,135	\$7,137,916	\$1,153,483	\$1515,821	\$9,633,976
Safety Regulation	\$38,581,337	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4
ARTCCs	\$140,979,767	\$58,812,876	\$3,164,614	\$3,972,715	\$15,434,164	\$5,139,221	\$4,665,963	\$23,516,185	\$8	\$635,595	\$26,237,594
Towers	\$28,088,771	\$2,551,823	\$183,782	\$288,566	\$3,191,827	\$2,273,873	\$16,134,595	\$3,564,465	\$2,123,202	\$697,472	\$2,771,846
TRACONs	\$153,644,835	\$37,362,957	\$2,496,121	\$4,412,857	\$24,584,154	\$4,982,841	\$28,464,588	\$6,836,384	\$3,381,134	\$982,221	\$19,423,186
FSSs	\$41,096,292	\$2,417,193	\$107,657	\$108,898	\$3,517,566	\$3,781,851	\$16,955,397	\$5,294,252	\$2,719,689	\$687,842	\$5,384,236
TOTAL OPS BUDGET	\$173,321,569	\$142,854,762	\$7,022,481	\$16,485,755	\$664,573,514	\$16,992,151	\$61,514,671	\$45,545,121	\$9,377,348	\$3,748,968	\$53,491,687
FIE	\$7,989,873	\$2,735,421	\$136,448	\$198,689	\$1,198,546	\$232,278	\$1,116,789	\$868,835	\$1148,394	\$62,786	\$1,196,893
R&D	\$5,448,578	\$1,863,843	\$93,845	\$135,486	\$817,298	\$223,856	\$763,653	\$592,469	\$95,736	\$42,815	\$416,175
ALP GRANTS	\$116,429,359	\$5,831,843	\$367,228	\$26,498	\$2,595,694	\$1,379,379	\$4,359,926	\$11,399,855	\$1117,864	\$81,943	\$244,442
TOTAL INDIRECT COSTS	\$583,179,379	\$152,493,869	\$7,669,195	\$18,846,436	\$71,185,845	\$19,646,664	\$67,757,833	\$58,486,288	\$9,731,342	\$11,936,545	\$65,758,898
GRAND TOTAL	\$5,755,771,687	\$2,176,310,287	\$119,782,817	\$127,187,216	\$847,659,828	\$154,988,858	\$776,785,657	\$615,889,963	\$71,894,181	\$32,612,268	\$538,948,766
USER GROUP PERCENTS	100.00%	37.85%	2.08%	2.21%	14,73%	2.69%	13.59%	8.95%	1.25%	0.57%	9.36%

Table 4.24

MINSYS
1993 MINIMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD	\$8	\$4,570,282	\$617,043	\$2,862,836	\$1,704,525	\$246,598	\$4,576,282
GRANT ADMINISTRATION	\$8	\$38,728,556	\$5,298,187	\$16,395,547	\$14,928,737	\$2,114,165	\$38,728,556
AVIATION STANDARDS							
TOTAL OVERHEAD	\$8	\$43,296,758	\$5,307,158	\$18,397,583	\$16,632,282	\$2,358,763	\$43,296,758
CAPITAL PROJECTS							
BENEFITTING GA:							
CS GRANTS	\$8	\$5,781,276	\$6	\$651,636	\$5,132,579	\$8	\$5,781,276
GA GRANTS	\$8	\$75,688,489	\$1,781,557	\$45,107,136	\$26,799,795	\$8	\$75,688,489
FIE GA PROJECTS	\$8	\$24,311,853	\$3,289,198	\$10,918,627	\$8,785,345	\$1,486,582	\$24,311,853
R&D GA PROJECTS	\$8	\$7,856,819	\$945,578	\$3,284,267	\$2,582,611	\$481,393	\$7,856,819
TOTAL CAPITAL PROJECTS	\$8	\$112,761,466	\$5,935,333	\$59,873,727	\$45,146,332	\$1,811,874	\$112,761,466
FLIGHT SERVICE STATIONS	\$168,444,585	\$36,213,115	\$17,562,520	\$145,278,853	\$31,375,998	\$11,040,219	\$285,257,626
AIR ROUTE TRAFFIC CONTROL CENTERS	\$166,540,917	\$8	\$21,899,746	\$44,432,872	\$186,289,180	\$8	\$166,540,917
TERMINAL NAVIGATION FACILITIES							
TERMINAL CONTROL FACILITIES:							
TOWERS	\$27,671,119	\$35,780,618	\$7,164,960	\$39,132,388	\$10,746,393	\$6,488,378	\$63,452,838
TRACONS	\$166,375,137	\$5,451,659	\$13,987,265	\$138,938,880	\$17,236,258	\$9,654,472	\$176,631,425
TOTAL MINIMUM GA ALLOCATION	\$529,631,379	\$249,785,471	\$74,681,268	\$445,121,319	\$227,455,372	\$12,159,461	\$782,222,878
FULL GA SHARE OF BUDGET --DOLLARS							
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET							
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC --DOLLARS							
PERCENTS							
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC							

FULL GA SHARE OF BUDGET IF
REGULATORY COSTS ARE ALLOCATED
TO THE PUBLIC
--DOLLARS

—PERCENTS

MINIMUM GA ALLOCATION AS PERCENT
OF BUDGET IF REGULATORY COSTS
ARE ALLOCATED TO THE PUBLIC

1994

Table 4.25

**1994 ALLOCATION
REGULATORY COSTS ALLOCATED TO USERS**

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMPUTER	AIR T&I	GEN AVIATION	GEN AVIATION PISTON	GEN AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST	
DIRECT COSTS														
Public Interest	\$15,586,356	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4
Navaid Maintenance	\$264,461,873	\$92,536,133	\$1,681,558	\$6,715,861	\$10,991,424	\$11,891,748	\$33,839,389	\$28,887,625	\$4,661,846	\$2,886,633	\$36,846,642	\$4	\$4	\$4
Safety Regulation	\$1,67,295,765	\$62,844,535	\$3,128,351	\$4,562,766	\$17,588,565	\$12,658,585	\$24,381,784	\$19,996,596	\$3,156,412	\$1,416,824	\$7,494,192	\$4	\$4	\$4
ANTCOS	\$437,822,797	\$133,832,666	\$18,289,782	\$22,659,744	\$92,135,526	\$38,675,696	\$52,767,899	\$134,656,238	\$8	\$4,791,886	\$146,983,174	\$4	\$4	\$4
Towers	\$176,418,158	\$15,619,588	\$1,123,454	\$1,715,845	\$26,157,239	\$14,977,873	\$45,573,152	\$22,464,636	\$13,396,274	\$3,82,823	\$17,157,350	\$4	\$4	\$4
TRACONS	\$976,389,827	\$337,458,691	\$14,684,863	\$25,954,938	\$201,795,369	\$27,793,812	\$284,362,656	\$24,225,356	\$19,178,582	\$5,569,839	\$195,452,670	\$4	\$4	\$4
FSSs	\$261,631,854	\$16,823,334	\$179,873	\$841,857	\$15,829,728	\$16,368,186	\$154,875,838	\$23,671,242	\$12,155,884	\$2,610,954	\$23,236,466	\$4	\$4	\$4
TOTAL OPS BUDGET	\$2,736,325,856	\$833,136,572	\$42,226,218	\$62,651,823	\$116,326,849	\$111,385,814	\$355,139,916	\$264,101,845	\$56,542,351	\$21,307,418	\$346,365,677	\$28,227,333		
FIE	\$1,548,928,457	\$767,895,278	\$35,948,822	\$56,528,528	\$322,388,986	\$32,086,939	\$63,989,327	\$193,628,827	\$7,295,971	\$5,553,684	\$123,633,818	\$4	\$4	\$4
R&D	\$229,946,122	\$118,462,968	\$5,321,927	\$7,998,635	\$47,861,685	\$5,891,385	\$16,913,377	\$15,621,572	\$2,181,173	\$1,83,473	\$16,822,927	\$4	\$4	\$4
AIP GRANTS	\$675,962,358	\$152,258,298	\$33,665,863	\$622,858	\$96,281,191	\$5,785,658	\$157,854,859	\$119,196,539	\$6,491,891	\$3,654,874	\$7,117,145	\$4	\$4	\$4
TOTAL DIRECT COSTS	\$5,393,147,997	\$2,263,753,188	\$121,364,838	\$127,793,037	\$876,772,626	\$157,611,788	\$773,897,473	\$588,525,822	\$60,331,585	\$11,549,429	\$194,868,766	\$28,227,333		
INDIRECT COSTS														
Public Interest	\$7,350,987	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Navaid Maintenance	\$67,481,715	\$38,339,396	\$1,586,689	\$2,201,899	\$13,438,663	\$1,635,686	\$11,854,419	\$9,471,252	\$1,529,186	\$684,155	\$12,736,457	\$0	\$0	\$0
Safety Regulation	\$43,735,912	\$15,419,746	\$767,862	\$1,116,987	\$16,238,891	\$2,610,755	\$5,488,976	\$4,458,557	\$767,345	\$317,131	\$2,629,669	\$0	\$0	\$0
ANTCOS	\$173,458,122	\$11,448,126	\$3,697,454	\$4,832,694	\$19,720,855	\$6,565,543	\$15,635,238	\$28,863,389	\$8	\$1,825,611	\$31,441,866	\$0	\$0	\$0
Towers	\$34,815,786	\$3,142,713	\$226,805	\$345,235	\$4,855,724	\$3,013,613	\$12,593,696	\$4,519,982	\$2,695,389	\$771,181	\$1,452,134	\$0	\$0	\$0
TRACONS	\$193,125,947	\$73,594,894	\$3,282,446	\$5,664,532	\$13,998,887	\$6,861,575	\$24,758,453	\$7,461,235	\$4,188,910	\$1,214,556	\$22,998,256	\$0	\$0	\$0
FSSs	\$53,250,167	\$3,183,367	\$148,918	\$27,616	\$1,656,069	\$1,973,217	\$21,624,576	\$6,962,439	\$3,575,184	\$1,862,892	\$6,834,676	\$0	\$0	\$0
TOTAL OPS BUDGET	\$593,211,556	\$197,128,472	\$9,742,546	\$14,466,878	\$96,186,436	\$26,861,383	\$81,985,345	\$61,739,855	\$12,588,898	\$5,074,726	\$10,528,934	\$6,311,622		
FIE	\$10,649,113	\$3,596,744	\$183,828	\$268,293	\$1,637,575	\$443,186	\$1,493,951	\$1,154,038	\$186,235	\$13,362	\$1,551,891	\$0	\$0	\$0
R&D	\$7,290,816	\$2,528,771	\$125,351	\$182,946	\$1,116,645	\$382,158	\$1,013,114	\$786,926	\$127,053	\$56,843	\$1,058,210	\$0	\$0	\$0
AIP GRANTS	\$17,015,524	\$5,221,071	\$388,637	\$27,975	\$2,782,978	\$285,255	\$4,511,552	\$3,511,253	\$122,898	\$84,325	\$244,187	\$0	\$0	\$0
TOTAL INDIRECT COSTS	\$628,296,283	\$28,561,958	\$18,432,562	\$11,946,893	\$181,557,626	\$27,811,813	\$88,953,963	\$67,192,872	\$12,123,484	\$5,299,256	\$63,379,230	\$6,311,622		
GRAND TOTAL	\$65,421,354,296	\$2,412,328,156	\$131,797,392	\$142,739,129	\$988,338,252	\$185,423,682	\$862,861,436	\$575,727,894	\$81,557,688	\$16,846,645	\$577,347,996	\$25,164,545		
USER GROUP PERCENTS	100.00%	48.96%	2.19%	2.31%	16.28%	3.88%	14.32%	9.56%	1.35%	0.61%	9.55%			

Table 4.26

1994 ALLOCATION
REGULATORY COSTS ALLOCATED TO PUBLIC

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GEN. AVIATION PISTON	GEN. AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
<u>DIRECT COSTS</u>												
Public Interest	\$25,546,756	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$24,227,533
Navaid Maintenance	\$261,461,073	\$92,536,133	\$1,581,550	\$6,715,061	\$14,991,424	\$11,891,748	\$34,039,389	\$26,087,625	\$11,654,044	\$2,066,693	\$30,846,642	\$0
Safety Regulation	\$312,337,487	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$312,337,487
AIRCOS	\$837,822,797	\$333,822,666	\$18,289,782	\$22,855,744	\$92,135,526	\$39,675,690	\$52,767,093	\$134,056,238	\$4	\$4	\$4	\$4
FBIERS	\$176,818,158	\$15,619,598	\$1,123,458	\$1,715,845	\$28,157,239	\$14,977,873	\$65,573,152	\$22,644,636	\$13,396,274	\$3,822,823	\$17,157,354	\$0
TRACONS	\$976,389,027	\$337,450,691	\$14,684,063	\$25,951,938	\$281,745,369	\$27,793,812	\$246,382,556	\$31,625,356	\$19,179,582	\$5,569,439	\$16,152,678	\$0
FSSS	\$261,631,854	\$10,823,824	\$479,873	\$641,857	\$15,823,728	\$16,986,186	\$154,875,838	\$23,671,242	\$12,155,884	\$3,618,954	\$23,236,566	\$0
TOTAL OPS BUDGET	\$2,861,366,753	\$794,252,832	\$39,897,867	\$58,866,237	\$178,828,285	\$181,477,369	\$150,838,126	\$241,805,888	\$49,385,968	\$19,891,394	\$338,875,485	\$346,565,821
F&E	\$1,546,928,457	\$781,895,276	\$35,948,822	\$56,528,528	\$132,389,908	\$32,886,939	\$63,989,327	\$183,628,827	\$7,295,971	\$5,553,664	\$123,693,818	\$0
R&D	\$229,948,122	\$182,513,353	\$5,184,310	\$7,494,972	\$44,836,319	\$4,774,768	\$14,323,819	\$13,491,325	\$1,759,943	\$879,455	\$13,965,659	\$19,595,796
AIP GRANTS	\$475,962,368	\$42,258,298	\$33,665,863	\$622,858	\$98,261,191	\$5,785,658	\$157,854,859	\$119,198,539	\$6,491,891	\$3,654,874	\$7,117,145	\$0
TOTAL DIRECT COSTS	\$5,516,169,699	\$2,134,036,253	\$117,826,863	\$122,734,587	\$828,246,695	\$113,934,659	\$746,286,131	\$485,467,179	\$64,932,913	\$29,979,396	\$443,651,506	\$364,164,817
<u>INDIRECT COSTS</u>												
Public Interest	\$5,440,897	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,161,568
Navaid Maintenance	\$65,186,833	\$22,643,068	\$1,124,823	\$1,646,480	\$10,813,861	\$2,769,388	\$6,986,783	\$7,856,398	\$1,139,298	\$589,718	\$9,469,884	\$0
Safety Regulation	\$18,527,974	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$18,527,974
AIRCOS	\$141,866,786	\$58,382,585	\$3,181,728	\$11,937,965	\$16,113,856	\$5,364,984	\$4,707,463	\$23,585,151	\$0	\$838,658	\$25,692,454	\$0
FBIERS	\$27,935,298	\$2,456,344	\$176,674	\$289,832	\$3,160,981	\$2,355,481	\$10,578,858	\$13,532,768	\$2,186,631	\$632,745	\$2,698,143	\$0
TRACONS	\$154,981,828	\$58,825,928	\$2,559,782	\$4,524,581	\$135,162,191	\$4,845,143	\$28,482,192	\$15,966,319	\$3,341,888	\$979,828	\$18,382,986	\$0
FSSS	\$411,368,442	\$2,434,343	\$167,752	\$189,349	\$3,564,483	\$3,882,968	\$17,169,876	\$15,324,186	\$2,733,966	\$612,171	\$5,226,447	\$0
TOTAL OPS BUDGET	\$475,342,451	\$144,783,908	\$7,152,960	\$10,622,214	\$68,819,352	\$19,877,585	\$61,759,364	\$45,464,734	\$9,321,766	\$3,733,512	\$61,687,252	\$43,649,483
F&E	\$7,957,815	\$2,751,776	\$136,438	\$199,712	\$1,218,375	\$229,639	\$1,165,694	\$859,448	\$138,626	\$62,853	\$1,155,193	\$0
R&D	\$5,427,258	\$1,676,487	\$93,312	\$136,187	\$831,241	\$224,923	\$754,672	\$585,795	\$94,588	\$42,315	\$1787,744	\$0
AIP GRANTS	\$16,349,138	\$5,025,186	\$366,634	\$26,676	\$2,604,287	\$197,438	\$4,348,346	\$3,184,242	\$117,478	\$61,194	\$237,566	\$0
TOTAL INDIRECT COSTS	\$585,116,656	\$154,755,448	\$7,719,744	\$18,984,789	\$72,673,955	\$19,829,997	\$67,959,876	\$56,293,611	\$9,672,512	\$3,919,874	\$63,987,769	\$43,649,483
GRAND TOTAL	\$6,823,366,356	\$2,288,395,481	\$125,646,666	\$133,719,376	\$908,928,658	\$163,761,656	\$814,165,287	\$536,788,991	\$71,685,424	\$33,896,478	\$547,639,275	\$443,858,299
USER GROUP PERCENTS	100.00%	37.93%	2.89%	2.22%	14.96%	2.72%	13.52%	8.91%	1.24%	6.36%	9.89%	6.7%

Table 4.27

NINISYS

1994 MINIMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD	\$8	\$4,587,686	\$626,881	\$2,806,966	\$1,784,525	\$217,229	\$1,587,646
GRANT ADMINISTRATION	\$9	\$49,528,169	\$5,619,856	\$17,148,351	\$15,359,885	\$2,284,998	\$49,528,489
AVIATION STANDARDS							
TOTAL OVERHEAD	\$8	\$45,116,889	\$6,247,936	\$19,147,517	\$17,264,483	\$2,456,227	\$45,116,889
CAPITAL PROJECTS							
BENEFITTING GA:							
CS GRANTS	\$8	\$6,052,666	\$8	\$681,925	\$5,378,731	\$8	\$6,052,666
GA GRANTS	\$8	\$79,115,722	\$1,708,510	\$447,286,188	\$39,136,185	\$8	\$79,116,722
FLE GA PROJECTS	\$8	\$25,441,523	\$3,498,567	\$11,382,264	\$9,898,919	\$1,467,773	\$25,441,523
R&D GA PROJECTS	\$8	\$7,384,713	\$1,003,647	\$3,345,114	\$2,613,922	\$422,831	\$7,384,713
TOTAL CAPITAL PROJECTS	\$8	\$117,995,624	\$6,247,723	\$62,619,420	\$47,211,678	\$1,889,884	\$117,995,624
FLIGHT SERVICE STATIONS							
AIR ROUTE TRAFFIC CONTROL CENTERS							
TERMINAL NAVIGATION FACILITIES							
TERMINAL CONTROL FACILITIES:							
TOWERS	\$29,613,823	\$37,662,145	\$7,427,934	\$11,463,637	\$11,140,822	\$6,643,575	\$66,675,968
TRACONS	\$177,847,614	\$15,644,987	\$14,938,271	\$139,855,711	\$18,395,817	\$10,383,582	\$186,485,699
TOTAL MINIMUM GA ALLOCATION	\$585,159,293	\$281,336,546	\$88,219,445	\$472,152,381	\$246,173,111	\$13,958,982	\$829,489,816
FULL GA SHARE OF BUDGET							
-DOLLARS							
-PERCENTS							
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET							
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC							
-DOLLARS							
-PERCENTS							
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC							

1995

Table 4.28

1995 ALLOCATION REGULATORY COSTS ALLOCATED TO USERS										
	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMITTEE	AIR TRAVEL	GEN. AVIATION	PISTON	TURBINE	ROTOR
DIRECT COSTS										
Public Interest	\$37,153,851	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Navaid Maintenance	\$276,722,866	\$97,580,748	\$4,815,392	\$17,887,989	\$43,769,340	\$11,784,993	\$35,379,387	\$29,983,625	\$4,637,864	\$2,164,974
Safety Regulation	\$175,366,399	\$65,776,768	\$1,266,859	\$1,775,704	\$50,186,507	\$13,545,469	\$25,335,477	\$28,848,341	\$3,284,086	\$1,475,641
ARTCCs	\$487,231,647	\$153,779,695	\$19,298,423	\$21,225,375	\$181,304,992	\$13,722,871	\$15,921,248	\$142,432,729	\$8	\$5,861,183
Towers	\$184,328,626	\$15,893,582	\$1,137,125	\$1,735,716	\$12,873,654	\$15,644,517	\$69,986,484	\$23,458,586	\$1,984,945	\$1,062,393
TRACONs	\$11,835,992,838	\$384,521,283	\$15,861,967	\$23,817,657	\$26,816,793	\$26,936,969	\$21,884,834	\$15,631,841	\$19,958,983	\$107,341,814
FSSs	\$276,846,323	\$11,466,469	\$507,252	\$991,567	\$16,825,728	\$17,894,388	\$163,450,121	\$25,842,656	\$12,854,417	\$1,919,882
TOTAL OPS BUDGET	\$2,895,272,823	\$988,954,455	\$44,917,828	\$66,755,495	\$449,125,823	\$121,498,199	\$564,879,469	\$277,358,988	\$54,927,489	\$22,321,297
FIE	\$11,620,790,366	\$423,512,807	\$41,781,577	\$59,113,940	\$132,226,819	\$13,234,772	\$65,584,114	\$114,136,829	\$7,575,339	\$5,777,577
R&D	\$240,589,343	\$115,617,514	\$5,772,746	\$8,368,581	\$58,761,185	\$5,927,451	\$17,582,371	\$16,248,831	\$2,185,326	\$1,074,112
AIP GRANTS	\$916,647,622	\$473,317,899	\$35,238,839	\$657,684	\$91,816,986	\$6,856,956	\$164,216,638	\$124,415,826	\$6,781,762	\$3,865,158
TOTAL DIRECT COSTS	\$5,673,279,554	\$2,321,491,875	\$127,522,198	\$134,895,558	\$326,981,855	\$162,612,789	\$181,372,585	\$152,196,795	\$11,475,836	\$32,978,444
INDIRECT COSTS										
Public Interest	\$7,299,391	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$424,384
Navaid Maintenance	\$86,781,797	\$38,136,722	\$1,586,067	\$2,283,122	\$13,684,594	\$3,637,921	\$11,683,481	\$9,319,654	\$1,583,479	\$672,927
Safety Regulation	\$13,469,826	\$15,335,797	\$761,572	\$1,113,534	\$19,273,196	\$2,685,467	\$5,426,949	\$4,489,838	\$698,668	\$131,458
ARTCCs	\$173,916,983	\$71,681,328	\$1,905,880	\$1,983,166	\$29,582,268	\$6,825,158	\$5,688,635	\$26,425,982	\$8	\$1,424,315
Towers	\$33,582,292	\$13,866,217	\$216,229	\$338,214	\$4,867,249	\$2,974,114	\$12,744,838	\$4,468,739	\$2,668,968	\$751,873
TRACONs	\$194,186,138	\$75,146,314	\$3,269,597	\$5,779,861	\$141,532,439	\$5,965,378	\$24,622,113	\$7,345,779	\$4,114,568	\$1,195,281
FSSs	\$53,389,591	\$13,189,655	\$141,115	\$248,885	\$11,689,993	\$4,976,978	\$21,834,917	\$6,966,613	\$3,575,969	\$1,462,433
TOTAL OPS BUDGET	\$593,371,339	\$198,616,289	\$9,808,740	\$11,577,946	\$197,688,837	\$26,985,916	\$81,586,245	\$16,386,717	\$112,552,935	\$5,829,487
FIE	\$18,640,487	\$3,686,423	\$182,589	\$268,443	\$1,657,672	\$443,268	\$1,459,579	\$1,135,567	\$181,194	\$81,496,659
R&D	\$7,229,519	\$2,528,586	\$125,135	\$183,051	\$1,138,364	\$392,264	\$996,488	\$774,342	\$121,919	\$55,911
AIP GRANTS	\$16,882,863	\$15,182,491	\$371,313	\$27,915	\$2,636,828	\$285,188	\$1,473,146	\$1,474,646	\$129,936	\$83,846
TOTAL INDIRECT COSTS	\$628,883,329	\$210,615,769	\$18,487,317	\$15,457,386	\$183,082,893	\$27,936,728	\$68,989,539	\$66,713,231	\$12,981,985	\$5,288,139
GRAND TOTAL	\$6,301,362,684	\$2,531,417,664	\$136,189,597	\$149,352,937	\$1,846,854,749	\$195,549,517	\$982,282,123	\$38,228,883	\$583,986,849	\$36,412,886
USER GROUP PERCENTS	180.88%	48.17%	2.19%	2.38%	16.51%	1.16%	14.32%	9.58%	1.34%	9.38%
										\$.585

Table 4.29

**1995 ALLOCATION
REGULATORY COSTS ALLOCATED TO PUBLIC**

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	AIR CARRIER COMPUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	\$37,153,351	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$7,616,561
Navaid Maintenance	\$276,732,866	\$97,688,746	\$4,845,382	\$7,887,989	\$13,765,348	\$11,784,893	\$35,379,387	\$29,981,635	\$4,637,864	\$2,164,974	\$39,359,515	\$29,537,291
Safety Regulation	\$324,988,686	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$324,988,686
ARTCCs	\$887,231,647	\$353,779,695	\$19,288,423	\$21,226,375	\$101,398,292	\$33,722,871	\$155,923,248	\$122,432,129	\$12	\$5,861,183	\$151,465,171	\$44
Towers	\$181,338,636	\$15,886,582	\$1,137,125	\$1,736,716	\$21,874,554	\$15,544,517	\$69,986,484	\$23,458,586	\$13,966,945	\$1,882,393	\$17,576,794	\$16
TRACONS	\$1,035,982,030	\$354,521,283	\$15,061,967	\$26,037,857	\$216,018,793	\$26,936,969	\$211,884,838	\$25,633,841	\$19,756,283	\$5,798,893	\$197,341,014	\$46
FSSs	\$275,846,323	\$11,466,163	\$587,262	\$891,567	\$16,655,728	\$17,890,588	\$161,450,123	\$25,842,656	\$12,654,417	\$3,819,892	\$24,868,429	\$46
TOTAL OPS BUDGET	\$3,829,275,113	\$843,177,696	\$41,558,169	\$61,979,784	\$399,018,516	\$187,895,838	\$539,543,992	\$256,550,567	\$15,139,409	\$28,845,656	\$347,448,484	\$358,525,891
FTE	\$1,624,798,366	\$823,512,087	\$41,701,577	\$59,113,948	\$342,256,813	\$34,234,772	\$65,684,114	\$114,134,823	\$7,775,139	\$5,777,577	\$125,820,191	\$46
R&D	\$249,689,343	\$188,413,388	\$15,415,893	\$7,845,415	\$47,538,357	\$5,863,537	\$14,892,386	\$14,831,848	\$1,828,288	\$194,389	\$14,164,841	\$28,585,841
AIP GRANTS	\$916,687,822	\$473,317,999	\$135,338,839	\$657,684	\$94,818,388	\$6,858,856	\$164,216,638	\$124,415,826	\$6,787,762	\$3,885,458	\$7,276,928	\$46
TOTAL DIRECT COSTS	\$5,798,281,845	\$2,248,428,918	\$123,397,678	\$129,596,661	\$883,621,680	\$153,243,485	\$785,347,013	\$589,135,271	\$67,438,798	\$131,343,888	\$154,711,545	\$371,834,932
INDIRECT COSTS												
Public Interest	\$5,434,853	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$115,958
Navaid Maintenance	\$64,652,846	\$22,599,824	\$1,121,969	\$1,641,251	\$10,134,959	\$2,716,127	\$8,765,698	\$6,942,825	\$1,128,841	\$581,308	\$9,113,845	\$46
Safety Regulation	\$38,311,376	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$38,311,376
ARTCCs	\$142,186,744	\$58,497,784	\$3,191,811	\$4,805,853	\$16,759,288	\$5,376,186	\$41,729,174	\$23,551,377	\$18	\$836,858	\$25,848,372	\$46
Towers	\$27,682,422	\$2,351,789	\$169,156	\$258,358	\$3,134,874	\$2,326,651	\$16,568,919	\$3,485,633	\$2,886,567	\$555,388	\$2,614,688	\$16
TRACONS	\$155,731,477	\$68,871,156	\$2,613,988	\$4,620,388	\$35,596,918	\$4,768,581	\$20,253,935	\$5,812,164	\$3,289,150	\$935,499	\$17,689,313	\$46
FSSs	\$41,448,635	\$2,448,694	\$187,973	\$189,774	\$3,587,824	\$3,868,897	\$17,311,783	\$5,338,451	\$2,736,125	\$812,912	\$5,123,082	\$46
TOTAL OPS BUDGET	\$475,458,356	\$115,961,547	\$7,284,838	\$10,715,688	\$69,286,783	\$13,189,663	\$61,722,431	\$45,186,456	\$9,226,282	\$3,781,965	\$59,985,258	\$43,436,273
FTE	\$7,892,115	\$2,751,685	\$136,687	\$199,834	\$1,234,801	\$29,977	\$1,887,538	\$845,337	\$136,373	\$61,038	\$1,189,674	\$46
R&D	\$5,382,453	\$1,876,444	\$93,156	\$136,272	\$841,497	\$225,828	\$742,274	\$576,457	\$92,996	\$41,623	\$756,715	\$46
AIP GRANTS	\$16,286,127	\$4,956,662	\$354,463	\$26,785	\$2,602,816	\$196,672	\$4,316,496	\$1354,484	\$116,558	\$60,100	\$229,971	\$46
TOTAL INDIRECT COSTS	\$585,813,858	\$155,586,338	\$7,798,418	\$11,878,418	\$73,884,297	\$19,943,332	\$67,839,798	\$49,962,733	\$9,572,289	\$3,884,726	\$62,881,617	\$43,439,273
GRAND TOTAL	\$6,383,294,895	\$2,448,887,248	\$131,795,934	\$148,675,863	\$957,588,897	\$173,186,137	\$853,217,833	\$559,898,884	\$77,483,887	\$35,227,726	\$556,713,162	\$444,461,285
USER GROUP PERCENTS	100.00%	36.14%	2.89%	2.23%	15.19%	2.75%	13.5%	8.67%	1.23%	8.56%	8.83%	6.58%

Table 4.30

MINSYS

1995 MINIMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD	\$0	\$4,586,455	\$638,584	\$2,083,695	\$1,697,481	\$246,856	\$4,586,455
GRANT ADMINISTRATION	\$0	\$42,412,146	\$5,969,893	\$17,918,576	\$16,215,821	\$2,388,857	\$42,412,146
AVIATION STANDARDS							
TOTAL OVERHEAD	\$0	\$46,998,601	\$6,648,397	\$19,982,271	\$17,913,822	\$2,554,912	\$46,998,601
CAPITAL PROJECTS							
BENEFITTING GA:							
CS GRANTS	\$0	\$6,333,516	\$0	\$713,577	\$5,619,933	\$0	\$6,333,516
GA GRANTS	\$0	\$82,787,738	\$1,863,125	\$49,398,193	\$31,534,481	\$0	\$82,787,738
FIE GA PROJECTS	\$0	\$26,623,737	\$3,705,477	\$11,894,141	\$9,492,750	\$1,531,399	\$26,623,737
R&D GA PROJECTS	\$0	\$7,727,826	\$1,065,628	\$3,491,868	\$2,729,935	\$140,403	\$7,727,826
TOTAL CAPITAL PROJECTS	\$0	\$123,472,811	\$6,634,231	\$65,489,771	\$49,377,288	\$1,971,801	\$123,472,811
FLIGHT SERVICE STATIONS	\$191,163,973	\$38,831,456	\$19,739,886	\$163,342,407	\$34,555,940	\$12,357,196	\$229,995,429
AIR ROUTE TRAFFIC CONTROL CENTERS	\$190,147,384	\$0	\$26,179,233	\$50,178,305	\$113,168,766	\$0	\$190,147,384
TERMINAL NAVIGATION FACILITIES							
TERMINAL CONTROL FACILITIES:							
TOWERS	\$31,593,151	\$38,369,207	\$17,704,127	\$43,932,554	\$11,555,073	\$5,830,604	\$70,082,558
TRACONS	\$190,174,938	\$5,845,804	\$15,948,410	\$149,452,375	\$19,638,963	\$11,000,255	\$199,255,321
TOTAL MINIMUM GA ALLOCATION	\$683,173,366	\$273,479,546	\$66,227,727	\$508,980,492	\$253,568,181	\$35,856,692	\$679,846,591
FULL GA SHARE OF BUDGET							
--DOLLARS							
\$195,549,517	\$302,282,123						
--PERCENTS							
3.10%	14.32%						
9.50%							
1.37%	7.95%						
4.63%							
0.57%							
13.96%							
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET							
--DOLLARS							
\$77,483,807	\$1,662,905,581						
--PERCENTS							
2.75%	13.54%						
8.07%							
1.23%							
26.38%							
0.53%							
13.29%							

1996

Table 4.31

**1996 ALLOCATION
REGULATORY COSTS ALLOCATED TO USERS**

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMPUTER	AIR TARIFF	GEN. AVIATION PISTON	GEN. AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	\$36,877,794	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$36,867,821
Navaid Maintenance	\$29,572,134	\$192,925,361	\$5,101,318	\$7,479,587	\$16,722,269	\$12,350,832	\$16,758,254	\$11,109,665	\$5,814,691	\$2,245,371	\$33,661,474	\$0
Safety Regulation	\$205,888,874	\$68,886,945	\$3,411,432	\$1,998,511	\$2,658,346	\$14,194,244	\$26,488,992	\$21,732,961	\$1,424,536	\$1,537,532	\$7,721,575	\$0
ARTC's	\$94,833,576	\$37,957,587	\$28,453,657	\$25,676,685	\$111,385,237	\$37,875,442	\$59,268,567	\$158,445,999	\$8	\$5,345,841	\$156,223,681	\$0
Towers	\$193,863,648	\$16,861,761	\$1,158,954	\$1,757,636	\$22,831,672	\$16,332,432	\$74,518,815	\$24,496,277	\$14,687,797	\$4,179,453	\$18,866,442	\$0
TRACIs	\$1,162,827,131	\$393,676,481	\$17,159,344	\$38,291,964	\$231,414,386	\$38,135,788	\$25,938,361	\$37,189,269	\$26,785,856	\$6,934,386	\$185,291,322	\$0
FSS's	\$232,976,826	\$12,149,486	\$537,165	\$944,310	\$17,958,876	\$18,932,082	\$173,401,459	\$26,496,252	\$13,595,385	\$4,839,644	\$24,322,317	\$0
TOTAL OPS BUDGET	\$3,662,452,672	\$968,712,861	\$7,793,852	\$71,151,753	\$182,353,936	\$129,016,788	\$59,295,658	\$29,139,624	\$7,428,265	\$23,385,141	\$364,015,981	\$36,867,821
FTE	\$11,595,995,439	\$664,673,891	\$11,527,573	\$61,813,455	\$363,319,384	\$36,628,396	\$69,429,298	\$118,794,825	\$7,463,865	\$6,888,587	\$127,945,358	\$0
R&D	\$251,773,617	\$121,807,812	\$6,832,586	\$8,764,171	\$53,829,284	\$6,282,271	\$16,272,232	\$16,892,131	\$2,268,938	\$1,115,887	\$17,384,359	\$0
AIP GRANTS	\$959,137,588	\$495,357,238	\$36,868,584	\$694,182	\$99,671,849	\$6,416,937	\$171,763,893	\$129,868,886	\$7,897,866	\$3,962,188	\$7,437,006	\$0
TOTAL DIRECT COSTS	\$15,969,358,916	\$2,445,798,196	\$134,222,439	\$142,421,560	\$999,174,359	\$178,326,484	\$655,761,874	\$556,945,379	\$74,658,126	\$31,722,855	\$516,746,765	\$36,867,821
INDIRECT COSTS												
Public Interest	\$7,263,438	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$418,779	\$6,784,711
Navaid Maintenance	\$45,580,860	\$38,178,858	\$1,495,752	\$2,193,884	\$13,699,110	\$3,621,379	\$11,453,388	\$9,121,646	\$1,173,254	\$658,364	\$11,688,635	\$0
Safety Regulation	\$42,973,558	\$15,177,387	\$753,462	\$1,182,744	\$10,226,274	\$2,588,368	\$5,338,398	\$4,337,921	\$686,993	\$388,256	\$2,424,764	\$0
ARTC's	\$173,544,636	\$71,488,261	\$3,891,832	\$4,889,397	\$21,218,238	\$7,459,398	\$5,675,273	\$28,648,269	\$8	\$1,817,967	\$29,748,469	\$0
Towers	\$34,829,198	\$2,864,936	\$265,782	\$314,888	\$1,939,100	\$2,328,118	\$12,638,714	\$4,379,753	\$2,611,766	\$717,255	\$3,219,418	\$0
TRACIs	\$194,222,860	\$76,363,218	\$1,322,988	\$5,673,456	\$44,865,692	\$5,842,688	\$24,369,367	\$7,194,599	\$1,829,886	\$1,178,682	\$21,189,591	\$0
FSS's	\$53,241,654	\$3,184,219	\$140,648	\$27,182	\$4,698,298	\$4,955,626	\$21,911,387	\$6,925,639	\$3,558,717	\$1,857,414	\$6,526,264	\$0
TOTAL OPS BUDGET	\$398,795,441	\$199,158,931	\$9,812,314	\$14,628,152	\$98,668,304	\$26,988,888	\$81,588,519	\$18,617,824	\$12,357,718	\$4,939,938	\$75,215,919	\$6,784,711
FTE	\$116,460,447	\$3,677,212	\$182,253	\$257,221	\$1,582,236	\$441,255	\$1,428,174	\$1,111,448	\$179,159	\$88,228	\$1,424,229	\$0
R&D	\$7,134,838	\$2,587,519	\$124,288	\$182,220	\$1,138,265	\$380,895	\$174,889	\$175,985	\$122,178	\$54,783	\$197,193	\$0
AIP GRANTS	\$16,666,877	\$5,116,226	\$373,171	\$27,736	\$2,675,861	\$286,184	\$4,413,424	\$1,421,565	\$119,172	\$81,373	\$23,246	\$0
TOTAL INDIRECT COSTS	\$625,856,763	\$210,463,887	\$18,192,086	\$15,897,338	\$104,152,687	\$27,936,343	\$88,428,865	\$15,988,742	\$12,776,211	\$5,176,233	\$77,841,587	\$6,784,711
GRAND TOTAL	\$6,594,415,679	\$2,656,214,881	\$144,714,486	\$157,528,898	\$1,183,327,826	\$286,272,747	\$944,186,879	\$522,454,121	\$87,436,336	\$39,649,889	\$534,546,291	\$37,692,533
USER GROUP PERCENTS	100.00%	40.28%	2.1%	2.3%	16.73%	3.13%	14.32%	9.45%	1.33%	8.68%	9.62%	0.57%

Table 4.32

1996 ALLOCATION REGULATORY COSTS ALLOCATED TO PUBLIC											
	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	AIR CARRIER	COMUTER	AIR TRAIL	GENL AVIATION	PISTON	AVIATION	ROTOR
DIRECT COSTS											
Public Interest	\$38,877,790	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6
Navaid Maintenance	\$289,572,134	\$182,385,961	\$15,181,310	\$7,479,587	\$46,722,289	\$12,358,632	\$36,758,254	\$31,189,665	\$15,814,691	\$42,245,171	\$39,864,474
Safety Regulation	\$329,464,568	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6
ARTCCs	\$948,813,576	\$374,957,587	\$28,453,657	\$25,676,985	\$111,385,237	\$37,875,482	\$59,268,567	\$153,445,999	\$16	\$5,345,641	\$156,222,681
Towers	\$193,863,640	\$16,881,761	\$1,158,954	\$1,757,835	\$22,831,672	\$16,332,132	\$74,519,815	\$21,486,277	\$14,687,797	\$14,179,453	\$18,886,442
TRACONs	\$1,182,827,131	\$393,876,481	\$17,139,344	\$18,291,984	\$231,144,386	\$38,135,788	\$225,138,361	\$37,189,263	\$28,755,856	\$16,838,388	\$18,851,291,322
FSSs	\$282,978,826	\$12,149,486	\$537,165	\$944,310	\$17,958,876	\$18,932,862	\$17,731,481,469	\$28,496,252	\$13,595,385	\$14,839,644	\$24,332,317
TOTAL OPS BUDGET	\$2,166,837,258	\$899,911,116	\$44,382,438	\$46,153,241	\$429,583,588	\$114,826,536	\$259,885,666	\$269,637,463	\$154,883,729	\$121,848,689	\$1356,291,486
F&E	\$1,655,955,479	\$858,673,891	\$43,527,573	\$41,813,455	\$163,319,386	\$36,628,396	\$59,429,298	\$118,734,825	\$7,863,865	\$6,088,687	\$127,945,358
R&D	\$251,771,617	\$113,469,697	\$15,655,915	\$8,212,819	\$56,388,110	\$5,379,518	\$15,476,796	\$14,595,579	\$11,898,748	\$958,251	\$14,365,517
AIP GRANTS	\$559,137,588	\$495,357,238	\$36,868,584	\$694,182	\$99,671,889	\$6,416,957	\$171,763,893	\$128,656,888	\$7,697,866	\$13,962,100	\$17,437,886
TOTAL DIRECT COSTS	\$6,893,743,392	\$22,369,351,134	\$139,434,421	\$136,872,697	\$942,674,919	\$153,234,486	\$825,556,646	\$1532,915,866	\$179,863,399	\$132,769,567	\$356,879,288
INDIRECT COSTS											
Public Interest	\$5,363,291	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6
Navaid Maintenance	\$63,886,373	\$22,488,384	\$1,114,189	\$1,633,634	\$18,286,726	\$2,697,575	\$8,586,626	\$6,794,736	\$1,895,271	\$496,417	\$18,786,895
Safety Regulation	\$37,911,985	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6	\$6
ARTCCs	\$141,852,481	\$58,323,489	\$3,181,499	\$13,931,512	\$17,325,688	\$5,785,969	\$4,728,815	\$23,181,381	\$831,528	\$42,384,861	\$6
Towers	\$27,297,252	\$2,249,386	\$161,144	\$246,112	\$13,881,626	\$2,285,682	\$18,597,174	\$2,423,692	\$2,045,219	\$55,168	\$42,321,658
TRACONs	\$135,799,384	\$61,844,885	\$2,656,513	\$4,635,359	\$35,668,860	\$4,678,896	\$20,918,906	\$5,751,751	\$3,221,781	\$935,986	\$16,948,184
FSSs	\$41,335,129	\$2,431,630	\$187,632	\$189,247	\$13,597,126	\$3,794,111	\$17,371,114	\$5,316,842	\$2,724,614	\$889,574	\$44,996,618
TOTAL OPS BUDGET	\$473,365,735	\$146,527,813	\$7,228,996	\$18,758,463	\$78,888,316	\$9,216,234	\$61,351,934	\$44,687,582	\$9,866,887	\$13,652,585	\$17,776,358
F&E	\$7,788,198	\$2,737,523	\$135,648	\$198,935	\$1,242,673	\$326,495	\$1,864,695	\$427,124	\$131,376	\$59,728	\$11,464,276
R&D	\$5,311,581	\$1,866,805	\$192,524	\$135,668	\$647,419	\$224,812	\$726,199	\$564,247	\$90,953	\$46,725	\$721,036
AIP GRANTS	\$16,169,111	\$1,943,662	\$364,520	\$265,567	\$2,587,674	\$198,969	\$4,268,265	\$1,309,831	\$115,870	\$78,627	\$221,223
TOTAL INDIRECT COSTS	\$582,574,625	\$156,875,883	\$7,889,728	\$11,119,625	\$74,757,516	\$19,967,718	\$67,453,494	\$19,386,385	\$9,426,296	\$13,821,657	\$59,781,189
GRAND TOTAL	\$6,596,318,127	\$22,369,351,134	\$138,244,141	\$147,932,522	\$11,632,118	\$183,282,118	\$894,012,139	\$1588,364,171	\$180,239,685	\$136,681,224	\$555,826,477
USER GROUP PERCENTS	100.00%	38.29%	2.10%	2.24%	15.43%	2.78%	13.55%	8.83%	1.22%	6.55%	6.58%

Table 4.33

MNSYS

1996 MINIMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD	\$0	\$4,564,099	\$645,423	\$1,991,998	\$1,682,249	\$215,338	\$4,564,099
GRANT ADMINISTRATION	\$0	\$44,381,426	\$6,344,128	\$18,731,915	\$16,896,766	\$2,411,524	\$44,381,426
AVIATION STANDARDS							
TOTAL OVERHEAD	\$0	\$48,947,525	\$6,989,543	\$29,722,106	\$18,579,015	\$2,656,862	\$48,947,525
CAPITAL PROJECTS							
BENEFITTING GA:							
CS GRANTS	\$0	\$6,627,385	\$0	\$746,687	\$5,800,698	\$0	\$6,627,385
GA GRANTS	\$0	\$66,629,889	\$1,949,574	\$51,681,898	\$32,997,618	\$0	\$66,629,889
F&E GA PROJECTS	\$0	\$27,858,943	\$3,934,984	\$12,417,827	\$9,311,350	\$1,597,532	\$27,858,943
R&D GA PROJECTS	\$0	\$8,865,897	\$1,131,806	\$3,644,728	\$2,158,828	\$459,536	\$8,865,897
TOTAL CAPITAL PROJECTS	\$0	\$128,284,315	\$7,016,284	\$68,498,139	\$51,644,584	\$2,057,188	\$128,284,315
FLIGHT SERVICE STATIONS	\$283,286,586	\$48,210,872	\$120,938,854	\$173,215,947	\$35,274,894	\$13,075,674	\$283,286,586
AIR ROUTE TRAFFIC CONTROL CENTERS	\$283,226,186	\$0	\$29,637,560	\$53,324,156	\$128,264,179	\$0	\$283,226,186
TERMINAL NAVIGATION FACILITIES	\$0	\$22,072,298	\$3,147,834	\$9,523,295	\$8,264,688	\$1,196,553	\$22,072,298
TERMINAL CONTROL FACILITIES:							
TOWERS	\$33,919,082	\$35,763,411	\$7,994,354	\$46,547,584	\$11,998,371	\$7,158,184	\$73,682,493
TRACORS	\$283,465,276	\$6,852,194	\$17,033,153	\$159,721,212	\$20,374,659	\$11,748,446	\$212,898,398
TOTAL MINIMUM GA ALLOCATION	\$643,856,970	\$286,259,607	\$92,179,532	\$531,544,848	\$287,928,229	\$37,884,907	\$933,520,505
FULL GA SHARE OF BUDGET							
--DOLLARS							
--PERCENTS							
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET							
--DOLLARS							
--PERCENTS							
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC	\$183,282,118	\$894,012,139	\$582,304,171	\$80,259,605	\$1,739,888,834		
--DOLLARS							
--PERCENTS							
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC	1.31%	7.77%	3.81%	0.54%	13.48%		
--DOLLARS							
--PERCENTS							

1997

Table 4.34

**1997 ALLOCATION
REGULATORY COSTS ALLOCATED TO USERS**

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMPUTER	AIR TAXI	GEN. AVIATION	GEN. AVIATION PISTON	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	\$49,641,728	\$40	\$40	\$40	\$40	\$40	\$40	\$40	\$40	\$40	\$40	\$40,339,776
Navaid Maintenance	\$381,046,595	\$180,524,293	\$15,369,862	\$17,831,668	\$19,868,331	\$113,013,357	\$38,176,663	\$32,265,996	\$15,196,971	\$12,327,982	\$14,361,012	\$4
Safety Regulation	\$211,595,789	\$71,963,047	\$11,562,333	\$5,231,673	\$55,739,065	\$114,915,298	\$27,523,635	\$22,651,513	\$13,562,212	\$11,581,771	\$17,841,216	\$4
ARTC's	\$598,463,629	\$397,433,872	\$21,679,682	\$27,215,782	\$122,482,592	\$48,764,477	\$62,817,563	\$158,922,998	\$19	\$15,647,025	\$161,121,516	\$4
Towers	\$282,383,884	\$116,196,568	\$1,164,961	\$1,779,238	\$21,033,154	\$17,055,113	\$79,428,389	\$25,588,194	\$15,254,166	\$14,364,386	\$18,446,763	\$4
TRACONs	\$11,171,857,683	\$425,721,664	\$16,525,972	\$32,744,264	\$27,988,433	\$11,393,563	\$27,571,349	\$18,658,896	\$21,653,394	\$6,298,328	\$111,316,525	\$4
FSSs	\$318,863,595	\$12,874,338	\$568,888	\$1,408,274	\$19,117,428	\$28,826,887	\$161,965,778	\$28,837,877	\$14,388,539	\$4,273,360	\$25,425,844	\$4
TOTAL OPS BUDGET	\$3,246,614,296	\$1,032,712,914	\$58,878,799	\$75,862,756	\$1518,213,317	\$137,158,484	\$623,486,397	\$366,111,995	\$68,851,271	\$31,581,772	\$373,256,647	\$12,341,944
FIE	\$1,771,689,289	\$899,441,731	\$15,429,678	\$64,631,840	\$385,645,997	\$39,174,818	\$12,285,732	\$123,685,828	\$6,159,296	\$6,246,938	\$13,431,235	\$4
R&D	\$253,455,913	\$126,644,343	\$6,383,654	\$9,178,143	\$57,875,296	\$6,659,175	\$18,943,343	\$17,556,226	\$2,355,829	\$11,159,188	\$17,541,583	\$4
AIP GRANTS	\$1,101,641,572	\$518,421,796	\$38,582,231	\$732,679	\$184,771,717	\$6,887,882	\$179,621,271	\$135,556,837	\$7,422,866	\$4,125,815	\$7,680,877	\$4
TOTAL DIRECT COSTS	\$6,222,446,996	\$2,577,220,784	\$141,186,354	\$158,495,417	\$1,865,746,357	\$199,869,350	\$900,377,743	\$582,433,878	\$77,987,682	\$36,835,677	\$528,465,482	\$12,341,944
INDIRECT COSTS												
Public Interest	\$7,863,988	\$40	\$40	\$40	\$40	\$40	\$40	\$40	\$40	\$40	\$40	\$410,983
Navaid Maintenance	\$43,931,963	\$29,846,374	\$1,476,828	\$2,170,352	\$13,712,599	\$13,584,682	\$11,155,778	\$8,873,881	\$1,429,272	\$648,228	\$11,180,834	\$4
Safety Regulation	\$42,245,178	\$14,935,939	\$723,258	\$1,885,914	\$10,188,932	\$2,557,488	\$5,228,813	\$4,243,284	\$671,489	\$181,383	\$2,383,482	\$4
ARTC's	\$172,253,655	\$78,796,583	\$3,861,983	\$4,846,866	\$21,819,394	\$7,261,566	\$5,550,339	\$26,399,533	\$40	\$1,885,331	\$28,781,326	\$4
Towers	\$23,378,818	\$2,786,985	\$194,699	\$297,361	\$3,849,557	\$2,858,403	\$12,842,878	\$4,275,191	\$2,549,413	\$729,415	\$3,482,988	\$4
TRACONs	\$193,349,571	\$77,173,866	\$3,358,149	\$5,935,746	\$44,952,863	\$5,696,895	\$23,985,545	\$7,867,788	\$3,925,238	\$1,148,283	\$26,179,888	\$4
FSSs	\$22,046,683	\$3,152,317	\$139,294	\$244,928	\$4,680,956	\$1,985,894	\$21,326,369	\$6,864,984	\$3,521,114	\$1,846,346	\$6,321,512	\$4
TOTAL OPS BUDGET	\$585,095,793	\$198,611,284	\$9,778,132	\$14,582,352	\$99,195,327	\$26,851,164	\$98,786,713	\$59,574,463	\$12,896,446	\$4,863,579	\$72,187,385	\$6,657,185
FIE	\$18,263,668	\$3,636,748	\$179,349	\$264,455	\$1,678,065	\$436,768	\$1,388,989	\$1,881,263	\$174,155	\$78,818	\$1,352,534	\$4
R&D	\$6,299,861	\$2,473,959	\$122,718	\$164,336	\$1,179,391	\$297,847	\$948,815	\$737,131	\$118,759	\$53,196	\$922,316	\$4
AIP GRANTS	\$16,361,165	\$5,425,582	\$366,349	\$27,328	\$2,640,857	\$281,874	\$4,338,135	\$3,359,484	\$116,745	\$78,272	\$219,629	\$4
TOTAL INDIRECT COSTS	\$618,728,434	\$289,753,413	\$10,439,141	\$15,954,471	\$181,646,441	\$27,798,569	\$87,453,771	\$64,743,546	\$12,986,165	\$5,874,857	\$74,581,775	\$6,657,185
GRAND TOTAL	\$6,961,121,483	\$2,786,974,197	\$151,625,495	\$165,459,888	\$1,178,328,797	\$217,621,019	\$987,831,515	\$647,576,625	\$39,493,787	\$4,169,934	\$683,867,258	\$38,989,849
USER GROUP PERCENTS	18.86%	48.38%	2.28%	2.48%	16.96%	3.15%	14.31%	9.38%	1.31%	6.68%	6.74%	6.57%

Table 4.35

**1997 ALLOCATION
REGULATORY COSTS ALLOCATED TO PUBLIC**

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMPUTER	AIR TARIFF	GEN. AVIATION	GEN. AVIATION PISTON	GEN. AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS													
Public Interest	\$44,641,728	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$42,341,344
Maintainance	\$383,000,595	\$186,524,293	\$5,359,862	\$7,891,648	\$49,864,321	\$13,823,957	\$38,176,653	\$32,255,996	\$5,196,971	\$2,327,982	\$10,361,012	\$4	\$37,781,816
Safety Regulation	\$337,743,816	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$37,781,816
ARTCCs	\$996,863,829	\$397,133,872	\$21,679,582	\$27,215,782	\$122,482,592	\$48,764,477	\$62,817,663	\$158,922,898	\$48	\$15,647,825	\$161,121,516	\$4	\$4
Towers	\$292,381,884	\$16,156,568	\$1,164,961	\$1,779,238	\$23,033,154	\$17,055,113	\$19,428,389	\$25,586,194	\$15,254,166	\$4,364,346	\$18,446,763	\$4	\$4
TRACONs	\$1,171,857,683	\$425,721,684	\$14,323,872	\$32,744,268	\$121,986,433	\$31,391,563	\$237,574,149	\$38,658,896	\$21,653,394	\$6,294,320	\$111,316,525	\$4	\$4
FSSs	\$310,843,555	\$12,874,338	\$564,888	\$1,806,274	\$19,117,428	\$26,836,887	\$183,965,771	\$28,637,877	\$14,386,529	\$4,273,368	\$25,629,844	\$4	\$4
TOTAL DPS BUDGET	\$3,363,722,322	\$964,749,867	\$47,388,465	\$78,631,862	\$162,474,231	\$122,283,196	\$691,962,762	\$283,463,461	\$56,485,859	\$22,943,881	\$365,415,437	\$378,845,768	
FIE	\$1,774,689,299	\$889,441,731	\$15,429,678	\$64,631,840	\$335,645,997	\$38,171,819	\$72,265,732	\$123,645,828	\$8,159,286	\$6,215,886	\$138,867,235	\$4	\$4
R&D	\$263,455,913	\$118,632,872	\$15,907,201	\$46,595,511	\$53,394,143	\$15,695,887	\$16,843,641	\$15,174,951	\$11,971,348	\$987,313	\$14,561,638	\$22,452,805	
AlP Grants	\$1,383,641,572	\$516,421,796	\$38,582,231	\$732,679	\$104,771,747	\$6,867,882	\$179,621,271	\$135,586,337	\$7,122,886	\$1,125,845	\$7,588,877	\$4	\$4
TOTAL DIRECT COSTS	\$6,465,589,016	\$2,497,215,465	\$137,227,568	\$144,591,112	\$1,806,286,117	\$173,862,775	\$669,954,487	\$357,799,378	\$71,827,781	\$31,282,238	\$157,644,447	\$392,497,815	
INDIRECT COSTS													
Public Interest	\$5,262,617	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,956,672
Maintainance	\$2,613,274	\$22,230,893	\$1,198,981	\$1,616,574	\$10,213,747	\$2,659,369	\$8,363,296	\$6,695,598	\$1,864,385	\$476,884	\$8,257,838	\$0	\$4,378,146
Safety Regulation	\$17,388,146	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$17,388,146
ARTCCs	\$144,766,443	\$57,819,986	\$3,154,838	\$3,359,438	\$17,819,286	\$5,936,562	\$4,786,573	\$23,126,556	\$8	\$821,549	\$23,448,535	\$4	\$4
Towers	\$256,769,782	\$2,122,081	\$152,629	\$233,167	\$1,817,756	\$2,234,492	\$18,671,267	\$3,351,413	\$1,986,539	\$571,884	\$2,416,826	\$4	\$4
TRACONs	\$135,466,185	\$61,790,155	\$2,681,452	\$4,715,651	\$35,939,987	\$4,549,892	\$19,659,731	\$5,682,746	\$3,136,242	\$911,681	\$16,131,186	\$4	\$4
FSSs	\$46,391,584	\$2,415,034	\$186,715	\$187,637	\$3,586,146	\$1,758,474	\$17,333,743	\$5,299,342	\$2,697,575	\$681,621	\$1,845,297	\$4	\$4
TOTAL DPS BUDGET	\$468,777,972	\$146,288,078	\$7,198,235	\$18,742,486	\$76,576,836	\$19,143,389	\$68,728,459	\$13,913,655	\$8,898,941	\$3,583,499	\$55,189,623	\$12,264,856	
FIE	\$7,642,666	\$2,787,538	\$133,371	\$196,885	\$1,213,946	\$325,179	\$1,131,817	\$984,932	\$129,557	\$58,878	\$1,806,951	\$4	\$4
R&D	\$5,211,877	\$1,846,378	\$91,368	\$134,263	\$848,255	\$221,752	\$796,179	\$58,955	\$88,418	\$39,686	\$686,679	\$4	\$4
AlP Grants	\$15,643,145	\$1,853,364	\$354,248	\$26,241	\$2,557,924	\$198,169	\$4,195,366	\$1,246,294	\$112,946	\$76,741	\$211,559	\$4	\$4
TOTAL INDIRECT COSTS	\$197,175,800	\$155,745,334	\$7,778,165	\$11,899,795	\$75,227,902	\$19,886,498	\$65,561,820	\$18,541,887	\$9,229,962	\$3,157,924	\$1,429,843	\$42,264,856	
GRAND TOTAL	\$6,982,984,816	\$2,497,256,799	\$145,985,733	\$155,690,387	\$1,801,513,119	\$191,651,265	\$193,619,227	\$606,343,176	\$63,267,663	\$38,828,162	\$157,959,294	\$434,762,673	
USER GROUP PERCENTS	100.00%	36.13%	2.18%	2.26%	15.67%	2.81%	13.57%	8.78%	1.21%	0.55%	6.33%	6.33%	6.38%

Table 4.36

1997 MINIMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD	\$0	\$4,517,571	\$649,072	\$1,967,986	\$1,658,079	\$242,520	\$4,517,571
GRANT ADMINISTRATION	\$0	\$46,446,489	\$6,743,343	\$19,579,318	\$17,584,158	\$2,519,539	\$46,446,489
TOTAL OVERHEAD	\$0	\$50,963,980	\$7,392,415	\$21,547,218	\$19,282,237	\$2,762,118	\$50,963,980
CAPITAL PROJECTS							
BENEFITTING GA:							
GS GRANTS	\$0	\$6,934,895	\$0	\$781,333	\$6,153,562	\$0	\$6,934,895
GA GRANTS	\$0	\$96,648,679	\$2,049,834	\$54,079,938	\$34,528,707	\$0	\$96,648,679
FILE GA PROJECTS	\$0	\$29,155,785	\$4,179,896	\$12,961,787	\$10,347,471	\$1,666,631	\$29,155,785
R&D GA PROJECTS	\$0	\$8,462,671	\$1,282,401	\$3,883,947	\$2,976,783	\$479,468	\$8,462,671
TOTAL CAPITAL PROJECTS	\$0	\$135,281,951	\$7,422,411	\$71,626,925	\$54,886,524	\$2,146,891	\$135,281,951
FLIGHT SERVICE STATIONS	\$216,177,766	\$41,639,350	\$22,195,754	\$183,697,492	\$38,886,444	\$13,837,446	\$257,817,136
AIR ROUTE TRAFFIC CONTROL CENTERS	\$217,254,749	\$0	\$32,782,614	\$56,667,677	\$127,884,458	\$0	\$217,254,749
TERMINAL NAVIGATION FACILITIES							
TERMINAL CONTROL FACILITIES:							
TOWERS	\$36,381,973	\$41,166,417	\$8,289,475	\$19,317,827	\$12,446,868	\$7,423,866	\$77,468,396
TRACONS	\$217,672,538	\$6,256,726	\$18,198,434	\$170,779,954	\$22,489,588	\$12,532,187	\$227,535,679
TOTAL MINIMUM GA ALLOCATION	\$587,487,051	\$299,687,921	\$99,832,774	\$564,153,374	\$283,864,591	\$40,044,234	\$998,741,388
FULL GA SHARE OF BUDGET	—DOLLARS						
FULL GA ALLOCATION AS PERCENT OF BUDGET	—PERCENTS						
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC	—DOLLARS						
FULL GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC	—PERCENTS						

NOTES

¹"Wharton Long Term Forecast" (September, 1985).

²The NASP is scheduled to run through the year 2000, but detailed project and budget information was only available through 1992.

³The military allocation includes certain "reimburseables"--monies paid to FAA by DOD for certain specialized services. In 1986, this amounted to \$23 million, or about four percent of the military allocation. It is expected that these reimburseables will grow with labor costs, so that by 1997, they will be approximately \$35.6 million, or six percent of the military allocation. Net military allocations, after receipt of the reimburseables, can be derived by subtracting these monies from the military allocation:

<u>Year</u>	<u>Reimburseables (\$ Millions)</u>
1986	23.0
1987	23.7
1988	24.4
1989	25.1
1990	25.9
1991	27.1
1992	28.3
1993	29.7
1994	31.0
1995	32.5
1996	33.9
1997	35.6

⁴See Wharton Econometric Forecasting Associates Long-Term Forecasts (1986).

⁵If all efficiencies were assumed to be realized beginning in 1992, ATC operating costs would be higher in the period 1986-1991, GA and military shares would increase because ATC costs make up a relatively large share of their allocated costs.

⁶It should be noted that there are two exceptions to the reduced unit cost evidenced in 1992. The marginal costs of general aviation operations at TRACONS, and air carrier operations at towers are higher than in 1984. In both cases, the standard error of the coefficients is large relative to those for other user groups; at the same time, however, the coefficient is significantly different from zero according to the t-tests.

⁷This assumption was made to interpolate between 1985 and 1992; the actual schedule of installation will be different.

⁸This pattern has recently been documented in a study by FAA-APO.

⁹There is a possibility that with increases in IFR flying, especially by turbine rotorcraft operators that the average rotorcraft flight would consume more FAA resources. At present, there are no reliable data on this recently emerging trend.

APPENDIX A

AMORTIZATION OF F&E

The F&E cost category in the FAA budget includes virtually all of the capital expenditures made for the ATC system by the FAA each year. By definition, capital assets are those which are not fully consumed by users in a single year. It is desirable to identify how much capital is consumed in a year by each user group in order to identify varying consumption patterns exhibited by users over time, and the impact of FAA F&E expenditure patterns on user group consumption.

In the present study, current and future users will be allocated the costs of capital projects as they use them. This is a departure from traditional financial reporting, but is consistent with the problem faced by the FAA of paying for current and future F&E. The reasons for this amortization method are discussed below.

Before beginning the discussion, it is appropriate to define some terms:

- o Depreciation: Allocation of costs incurred for capital assets over the useful life of the asset.
- o Amortization: The schedule of payments necessary to retire the costs of a capital asset.
- o Planning Gap: The difference between the total cost of a capital project and the sum of depreciation.

- o Cost of Capital: The opportunity cost attributable to the investment in a capital project.
- o Replacement Cost: The future cost of a current project after adjusting for inflation and technological change.

Overview of the Problem

Past FAA Cost Allocation Studies have not amortized F&E.

Instead, F&E expenditures identified in the budget have been expensed in a single year. This treatment ignores the fact that capital is consumed over time and not in a single year; and under certain conditions, can result in a misidentification of the actual attributable costs to users over time. For example, suppose the FAA spends money on capital equipment in one year, and then spends nothing on capital in the next three years. If users pay for it in the same year, then all future users obtain the benefits of it free of charge. Obviously, such a treatment is inequitable, and it also does not reflect the actual consumption of the capital services produced. On the other hand, if capital expenditures are about the same every year, and are undertaken to benefit about the same mix of users, then expensing F&E would be just as accurate a measure of capital consumption as amortization.

Ideally, one would measure the consumption of capital services by estimating it in the context of a long-run marginal cost function. Such a function would include not only the variable costs of operating a particular facility, but also the maintenance, depreciation (including replacement costs) and interest consumed in the production process. Unfortunately, in the case of the FAA, it was not feasible to estimate long run

marginal cost functions which include depreciation and the cost of capital. Therefore, the F&E allocation was developed separately.

Even in the absence of complete long-run marginal cost estimates, it is important to focus on the two key components of capital consumption: depreciation and the cost of capital. The former represents the value of capital consumed in a particular time period. Depreciation should be valued to reflect the replacement cost of the asset. If an existing asset put into place in year one must be replaced in year three, the cost of that replacement would be affected by both technological change and by the rate of inflation. If replacement costs are not considered, insufficient funds may be collected to replace the capital as it wears out.

The cost of capital represents the opportunity cost of employing the capital in FAA facilities instead of employing it elsewhere. The time value of money embedded in a capital project is a real cost since there are alternative uses of those funds. Therefore, capital consumption should include not only depreciation, but also the cost of capital.

Including replacement costs and the cost of capital in an amortization schedule is not the same as reporting depreciation in a financial report. The purpose of traditional financial reporting is to identify net income, defined as income received minus costs incurred. Replacement costs and the cost of capital are not considered in measuring net income. The purpose of the amortization schedule suggested above is to insure that capital

can be replaced as it wears out. The suggested amortization schedule is a tool to help plan and control a capital budget; a depreciation schedule reported in a financial statement is part of a report on current income.

One of the difficulties of including replacement costs in amortization schedules is that it is difficult to predict both inflation and the impacts of technological change. In one set of circumstances, however, the problem can be made more tractable. If it is known that a certain piece of equipment being put in place this year is to replace another piece of equipment put into place two years ago, then the price of the equipment this year exactly identifies the impacts of inflation and technological change over the two year period. The cost of the current capital expenditure exactly identifies the replacement cost of the past capital project. Under these circumstances, it makes no difference whether the amortization schedule is based upon historic cost including replacement, or current cost--they are the same. (This proposition is demonstrated below.)

It is also interesting to note that basing amortization schedules on current capital expenditures is equivalent to identifying tax revenues in a capital budgeting problem. In the present case, tax revenues are equivalent to the future consumption of current capital expenditures. Looking at amortization in this way is also consistent with the problem faced by the FAA today: to design a set of taxes to pay for current and future F&E projects.

Finally, since taxes will be based in part upon the amortization schedule to be developed in this study, it is

desirable that the pattern of payments made for recovery be relatively even. It would be difficult to administer taxes which vary year to year. Furthermore, providing for relatively even payments to recover expenses over time reduces the possible intertemporal inequities that would occur if some users consume services during high tax years, while others consume services only in low tax years.

Amortization Examples

The following two-period examples for a single investment illustrates all of the preceding propositions. Suppose an investment was made two years ago and must be replaced today. What amortization schedule will exactly offset the current costs of the project and provide for an even payment pattern over time? To answer this question, assume the following:

- o The cost of the project two years ago was \$10.
- o The inflation rate over the past two years and the expected inflation rate in the following two years is ten percent.
- o The cost of capital (the appropriate discount rate) is ten percent.
- o The expected asset life of a project put into place this year is also two years.

There are five relevant cases which can be examined under these assumptions. They illustrate all of the propositions previously described. Those cases are:

- o Historic depreciation, which corresponds to traditional financial reporting.
- o Historic depreciation with replacement costs, which corresponds to adjustments made in the footnotes to traditional financial statements.
- o Historic depreciation with replacement and consideration of the cost of capital.
- o Amortization of current projects including replacement and capital costs.
- o Amortization of current projects with replacement and capital costs assuming an even payment stream over time.

All of these examples are shown in Table A.1, and are discussed in turn. The equations used to develop the examples in Table A.1 are shown in Tables A.2 and A.3.

Historic Depreciation

The first case shown in Table A.1 corresponds to traditional financial reporting which is designed to report annual net income. Assume an investment was made two years ago (at the beginning of year 1) and cost \$10. Today, at the beginning of year 3, the replacement cost of that project (assuming a ten percent inflation rate) is \$12.10. Assuming taxes are based on the depreciation schedule, only five dollars of user taxes are collected in each year (years 1 and 2). Historic depreciation does not reflect either the increasing cost to replace the project or the opportunity cost of the capital invested. As a result, there are insufficient funds to replace the capital at the beginning of year 3. The so-called planning gap is \$2.10.

Table A.1
USER TAXES TO FUND THE PROJECT

	<u>Year 1</u> <u>User Tax</u>	<u>Year 2</u> <u>User Tax</u>	<u>Year 3</u> <u>User Tax</u>	<u>Year 4</u> <u>User Tax</u>
Historic Depreciation	$\frac{P}{2}$	$\frac{P}{2}$	-	-
Historic with Replacement Cost	$\frac{P(1+i)}{2}$	$\frac{P(1+i)^2}{2}$	-	-
Historic with Replacement Cost and Capital Cost	$\frac{P(1+i)}{2}$	$\frac{P(1+i)^2}{2}$	-	-
Current with Replacement Cost and Capital Cost	-	-	$\frac{P(1+i)^2(1+r)}{2}$	$\frac{P(1+i)^2(1+r)}{2}$
Current Mortgage	-	-	$P(1+i)^2 \left[\frac{r(r+1)^2}{(r+1)^2 - 1} \right]$	$P(1+i)^2 \left[\frac{r(r+1)^2}{(1+r)^2 - 1} \right]$

P = Price in Year 1

Asset Life = t = 2

Cost of Capital = r

Replacement Cost Rate = i

Table A.2
ALTERNATIVE FEE AMORTIZATION METHODS: AN EXAMPLE

		Beginning of Year 3	Funded Thru User Taxes = User Cost - Investment	Planning GAP	User "Taxes" End of Year 1	User "Taxes" End of Year 2	User "Taxes" End of Year 3	User "Taxes" End of Year 4	Payment Pattern
Historic Depreciation	10	12.10	-	(5 + 5) = 2.10 short-fall	5	5	-	-	Even
Historic with Replacement Cost	10	12.10	- (5.5 + 6.05) = 0.55 short-fall	5.5	6.05	-	-	-	Uneven
Historic with Replacement Cost & Capital Cost	10	12.10	- (6.05 + 6.05)	∅ if $r = i$	5.5	6.05	-	-	Uneven
Current with Replacement Cost & Capital Cost	12.10	12.10	- (6.05 + 6.05)	∅ if $r = i$	-	-	6.65	7.32	Uneven
Current Mortgage	12.10	12.10	- (6.34 + 5.76)	∅	-	-	6.97	6.97	Even

Assumptions: Asset Life = $t = 2$ years
 Cost of Capital = $r = 0.1$
 Replacement Cost Rate = $i = 0.1$

This shortfall occurs because users in the past two years have been consuming a capital asset whose true costs are higher than the amount depreciated in each year.

If the investor (the FAA) is interested in funding current capital projects, then traditional financial reporting using historic depreciation (straight-line or otherwise) will lead to shortfalls in tax collections. It should be noted, however, that one of the desirable features of the historic straight-line depreciation method is that the annual taxes collected to amortize the investment are the same. This even payment pattern is desirable so that taxes do not have to be adjusted in each year.

Historic Depreciation with Replacement Costs

In the second example in Table A.1, depreciation payments include consideration of replacement costs. As is shown in Table A.2, this means that the first year's depreciation payment includes a replacement component $(1+i)$, as does the second year's $(1+i)^2$. The result is that the shortfall is smaller than in the first case, but still exists because there is no consideration of the cost of capital. Also, because replacement cost is considered, the user taxes are different in each year.

In sum, the planning gap is smaller because replacement costs have been considered, but the payment pattern required to fund the depreciation schedule is not even.

Historic Depreciation with Replacement and Consideration of Capital Costs

The third example in Table A.1 includes consideration of both replacement costs and the cost of capital in developing the

depreciation schedule. In Table A.2, notice that the actual taxes paid by users in the first year are the same as in the previous case. But, in calculating the planning gap in Table A.3, the first year's depreciation payment includes both a replacement cost factor ($1+i$) and an opportunity cost of capital factor ($1+r$). The latter represents the interest payment earned on the first year's taxes collected. In other words, users are being compensated for paying money into the system before it is required to replace the capital. This is equivalent to the opportunity cost of capital.

In calculating the planning gap in Table A.3, the second year's payment includes only the replacement cost term ($1+i$)². This is the case because, in this example, it is assumed that the money comes in at the end of the second year and is immediately spent at the beginning of year 3. Again, the second year's payment is the same as in the previous case.

Including the cost of capital in the analysis reduces the planning gap to zero, as long as the cost of capital and the replacement cost rate are equivalent. The annual payment pattern of taxes remains uneven, however.

Amortization of Current Projects Considering Replacement and Capital Costs

So long as the current project replaces the investment made two years ago, amortizing the current project into the future can be made equivalent to historic depreciation with consideration of replacement and capital costs. This is illustrated in the fourth case in Table A.1. The planning gap is calculated by comparing the current cost of the investment project with the present value

Table A.3

ALTERNATIVE F&E AMORTIZATION METHODS : THE TWO PERIOD CASE

	Beginning of Year 3 Current Cost	Funded Through User Taxes	Planning Gap	Payment Pattern
Historic Depreciation	$P(1+i)^2 - \left[\frac{P}{2} + \frac{P}{2} \right]$		= Shortfall	Even
Historic with Replacement Cost	$P(1+i)^2 - \left[\frac{P(1+i)}{2} + \frac{P(1+i)^2}{2} \right]$		= Shortfall	Uneven
Historic with Replacement Cost & Capital Cost	$P(1+i)^2 - \left[\frac{P(1+i)(1+r)}{2} + \frac{P(1+i)^2}{2} \right]$		= 0 if $r = i$	Uneven
Current with Replacement Cost & Capital Cost	$P(1+i)^2 - \frac{P(1+i)^2(1+r)}{1+r} + \frac{P(1+i)^2(1+r)^2}{(1+r)^2}$		= 0	Uneven
Current Mortgage	$P(1+i)^2 - P(1+i)^2 \left[\frac{r(r+1)^2}{(1+r)^2 - 1} \right] \left[\frac{1}{(1+r)} + \frac{1}{(1+r)^2} \right]$		= 0	Even

P = Price in Year 1
 Asset Life = $t = 2$
 Cost of Capital = r
 Replacement Cost Rate = i

of future payments to be made by users in years 3 and 4 to offset the depreciation of the asset. As is shown in Table A.2, users are charged higher taxes in years 3 and 4 to reflect the opportunity cost of the FAA's investment--the $(1+r)$ terms. These payments are then discounted back to the current date in Table A.3. As a result, the present value of the funded depreciation exactly offsets the current cost of the project; the planning gap is zero.¹ The pattern of user taxes remains uneven, however.

Amortization of Current Projects with Consideration of Replacement and Capital Costs and Assuming Constant Payments Each Year

The final example in Table A.1 also results in the elimination of the planning gap. Current projects are amortized into the future in such a way that the payments made by users in each year are equal. The equations used to derive the payments are shown in Table A.2 and are equivalent to deriving the mortgage payment on a house. These payments are then discounted back to the beginning of year 3 in Table A.3 to calculate the planning gap.

The key advantages of this amortization method are:

- It considers both the cost of capital and replacement costs.
- It eliminates the planning gap, and so ensures that current FAA projects will be fully funded.
- It provides an amortization schedule which reflects consumption of capital services as they occur.
- It provides an even payment pattern over time so that taxes do not have to be adjusted each year.

- o Finally, the rate of replacement cost and the cost of capital do not have to be equivalent to eliminate the planning gap. A mortgage can be computed to eliminate the planning gap under any set of assumptions regarding these variables.

Treatment of Embedded Capital

One issue remains to be resolved: how to treat the initial endowment of capital embedded in the FAA airway system. In the example in Table A.1, someone initially put up the \$10; users pay taxes to replace the project, but no consideration is given to returning the initial \$10. There are three ways to account for the initial endowment:

- o A return could be imputed to the initial endowment, and carried forward and paid for by users in the current and all future years. In effect, the return would be an annuity paid to account for the opportunity cost of the initial endowment.
- o The initial endowment can be treated as a public good provided by the government in exchange for users replacing it in perpetuity as it wears out.
- o The initial endowment is a sunk cost for which there is no necessary return because there are no alternative uses. Since there is no opportunity cost, no return is necessary.

The later two interpretations more clearly describe embedded FAA F&E. In the early years of aviation, users may not have been willing to invest in the system until one already existed.

Direct user benefits may have been insufficient to justify an

airway system, but government support indicated a belief that social benefits exceeded the costs of establishing the system. Once established, the system helped to stimulate the growth of aviation and direct benefits grew to the point where users could defray future system costs.

The last interpretation--that embedded capital is really a sunk cost--also describes FAA F&E. Salvaging and reconditioning much of the FAA's F&E would cost more than the value that could be received in alternative uses. Therefore, the costs are sunk, and, having no alternative uses, require no return.

There are some notable exceptions to the sunk cost theory, however. Land and real estate holdings of the agency and its aircraft clearly have alternative uses. However, the initial endowment of these assets can be assigned to the public good category just as can other embedded F&E.

Finally, in the past, F&E has been expensed. No return on capital has ever been imputed to the initial endowment of F&E.

For these reasons, no return is imputed to embedded F&E. Also for these reasons, paying for embedded F&E is largely irrelevant in the present study. Consideration of current and future F&E, and how it should be amortized, is the relevant problem facing the FAA.

Application of Mortgage Method to FAA Cost Allocation Problem

The problem faced by the FAA is more complex than that discussed in the previous sections. The FAA is interested in developing a set of taxes to offset the costs of current and future F&E projects. The agency is also interested in developing

a set of taxes which both reflects consumption of capital services, and provides for a relatively even payment pattern over time.

The mortgage method is ideally suited to accomplish these objectives. In order to evaluate current and future F&E projects, expected future F&E expenditures are discounted back to 1986. A mortgage can then be calculated to exactly offset the cost of those expected expenditures over the life of the assets.

Three data elements and related assumptions are necessary to implement the methodology:

- o A stream of F&E projects over time,
- o The average asset life of F&E,
- o An appropriate discount rate.

The stream of expected future F&E expenditures was provided by APO based on the best information currently available within the agency. The expected asset life was assumed to be 13 years, which is consistent with a recent internal APO study indicating that the average FAA reequipment cycle is approximately 13 years. This is the best information available on the life cycle of FAA F&E. Existing FAA records do not permit an exact tracking of the depreciation schedule for different pieces of equipment. Finally, the OMB standard ten percent discount rate was employed as the cost of capital.

It should be noted, in addition, that the FAA's expected F&E stream over time includes an estimate of inflation and the impacts of technological change. No additional explicit assumption concerning replacement costs needed to be made for the analysis.

NOTES

¹The cost of capital cancels out in the planning gap calculation because future taxes must be discounted to 1984 to compare the results with the other cases.

